MAXIMUMPC

UNAUTHORIZED GUIDE TO WINDOWS XP

SPECIAL ISSUE • SUMMER 2004

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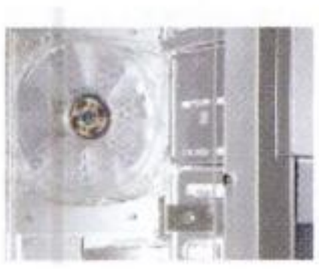

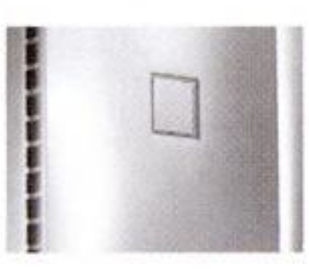

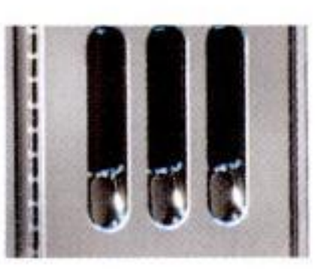

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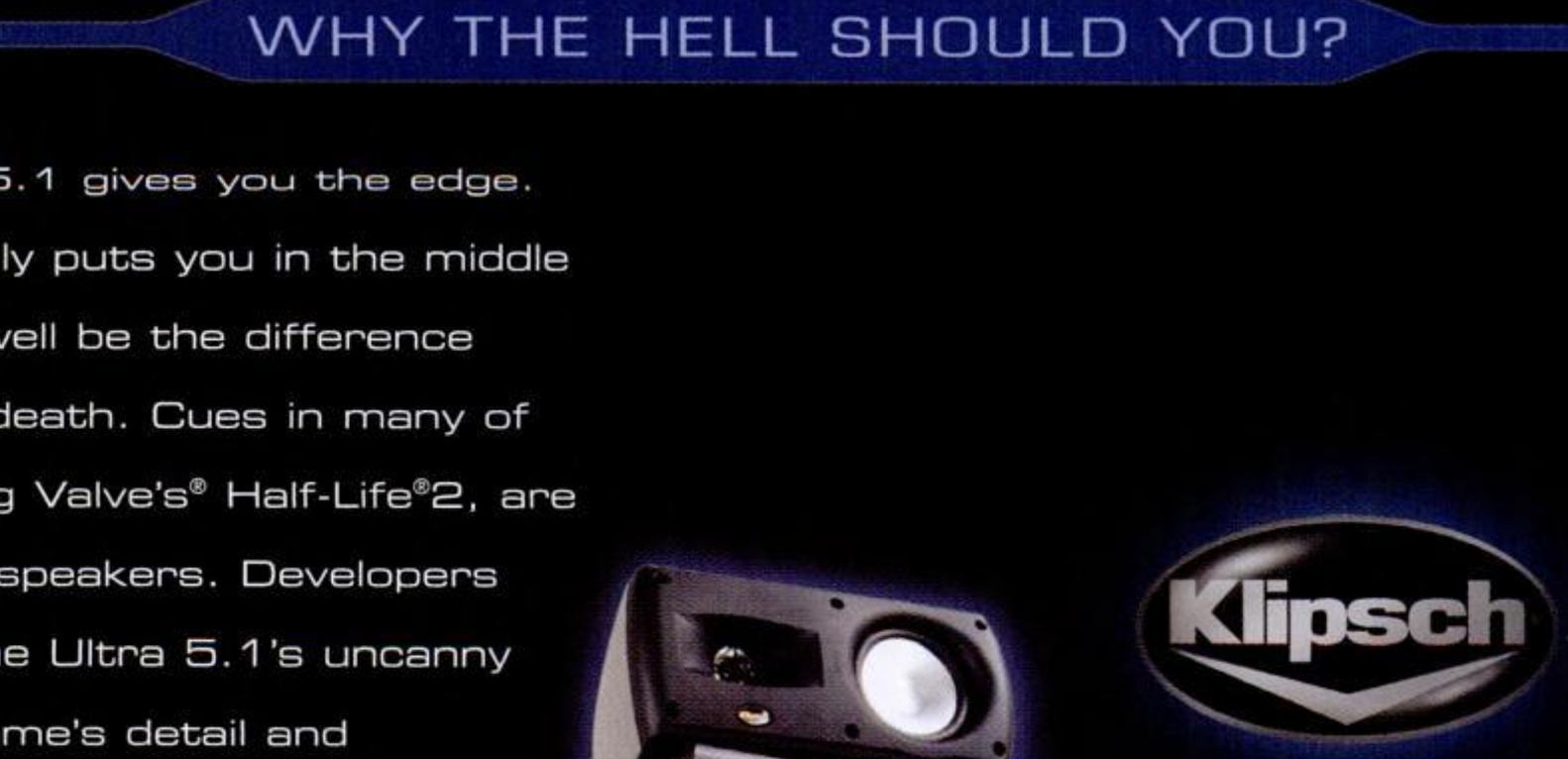

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Release Notes

Harness Your Inner Hacker

I bought my first PC in 1995. For months, I was terrified to do anything that would alter its original factory-default condition. Even something as innocuous as installing a new game made me nervous. Then there was that scary piece of tape on the case warning me that if I did even so much as open it, I would risk voiding all warranties and technical support.

I simply had no business even thinking about tinkering with this highly complicated, and expensive, piece of equipment. Microsoft and the hardware "pros" at Packard Bell certainly knew better than I how an OS and PC should look, feel, and operate... right? So I conformed to their rules, and let my OS dictate my Desktop.

As it turns out, I bought that PC for the sole purpose of playing games, and there's probably no better catalyst for getting over a fear of PC-tinkering faster than a gaming addiction. When I finally did crack open the case to install a second 8MB stick of RAM, then watched my machine not only boot but work *better*, the floodgates opened. I became a "mad tinkerer," ripping out my sound-and videocards and replacing them with newer, better, faster versions. I added a second hard drive, faster modem, and dumped Win3.1 for Win95. This expanded my tinkering prowess to tweaking Windows' appearance and even performing some rudimentary "hacks."

Nowadays, the first thing I do to a new PC is tear it open inside and out. I operate on its innards and customize its OS to my liking. With WinXP that means lots of changes. Microsoft may try, but it's got no business telling me how my PC's desktop should look, or how I should use my files. I'm in charge of my OS, and you can and should be too.

Becoming a WinXP power user is a process—a six-step evolution that we're about to explain in detail. All that's required on your part is a bit of courage, curiosity, and a desire to unleash the full potential of your PC's power. We bet that once you get started with customizing WinXP you'll never look back—and each new rollout of Windows will get imprinted with your personality stamp right out of the box. So what are you waiting for? Tap into your inner hacker, and master WinXP today.

—STEVE KLETT

Unauthorized Guide to Windows XP

Summer 2004

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Rig XP for top performance by tweaking its interface and eliminating unnecessary background services. We show you how.

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Follow our daily, weekly, monthly, and yearly routines to keep XP shiny and clean.

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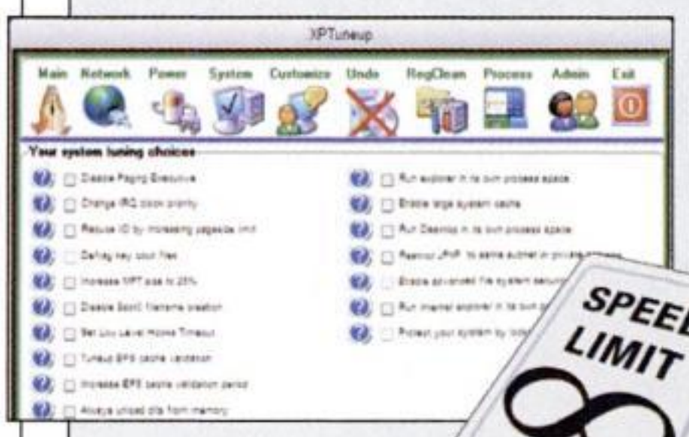
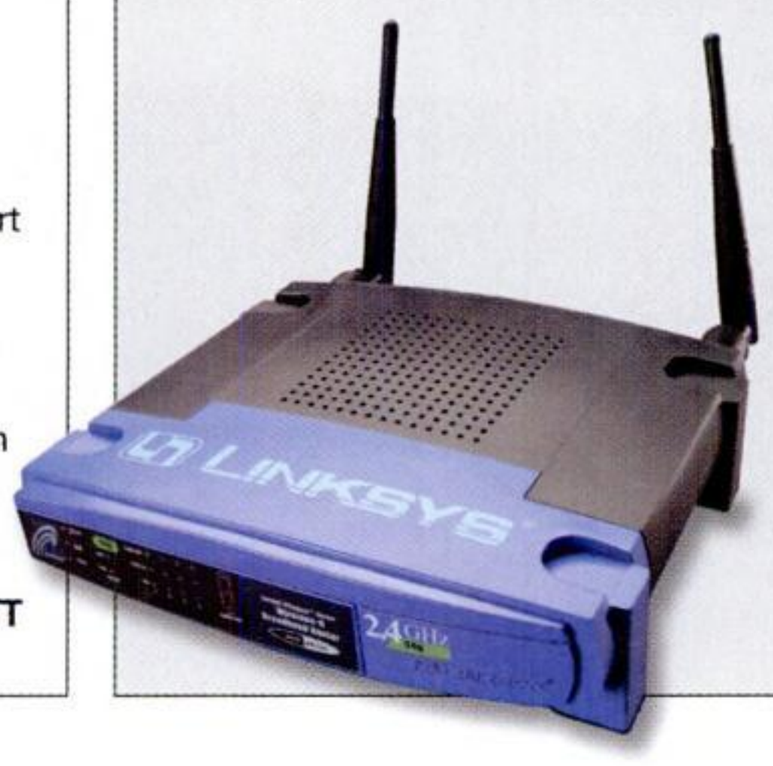
Whether you've got DSL, cable, satellite, or even dial-up, we show you how to tweak XP for maximum online performance, and share your connection—for free!





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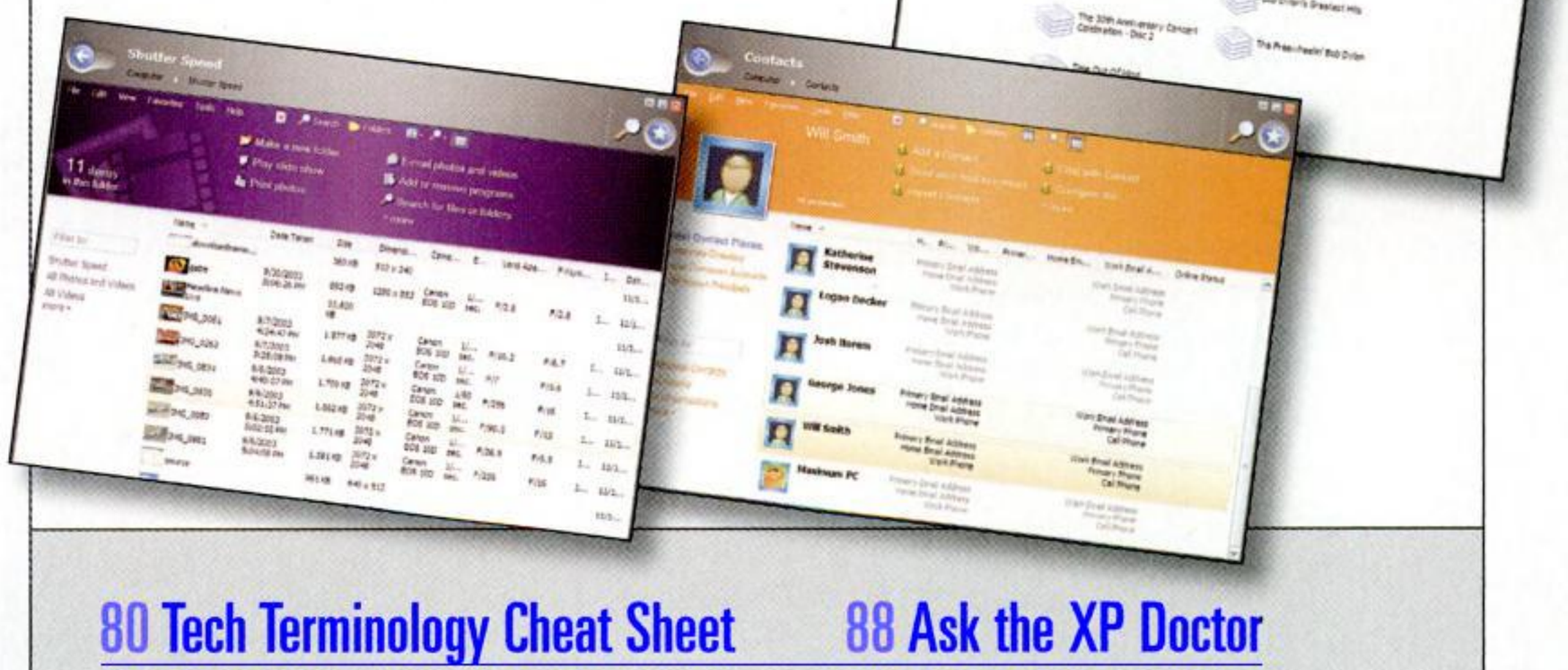

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MAXIMUM PC is published monthly by Future Network USA, 150 North Hill Drive, Suite 40, Brisbane, CA 94005, USA. Newsstand distribution is handled by Curtis Circulation Company. Basic subscription rates: one year (12 issues) US: $20; Canada: $26; Foreign: $42. Basic subscription rates "Deluxe" version (w/CD): one year (12 issues/12 CD-ROMs) U.S.: $30; Canada: $40; Foreign $56. US funds only. Canadian price includes postage and GST (GST#R128220688). Postmaster: Send changes of address to Maximum PC, P.O. Box 5159, Harlan, IA 51593-0659. Int'l Pub Mail# 0781029. For customer service, write Maximum PC, PO Box 5159 Harlan, IA 51593-0659; Maximum PC, 150 North Hill Drive, Brisbane, CA 94005. Future Network USA also publishes PC Gamer, MacAddict, Official Xbox, and PSM.

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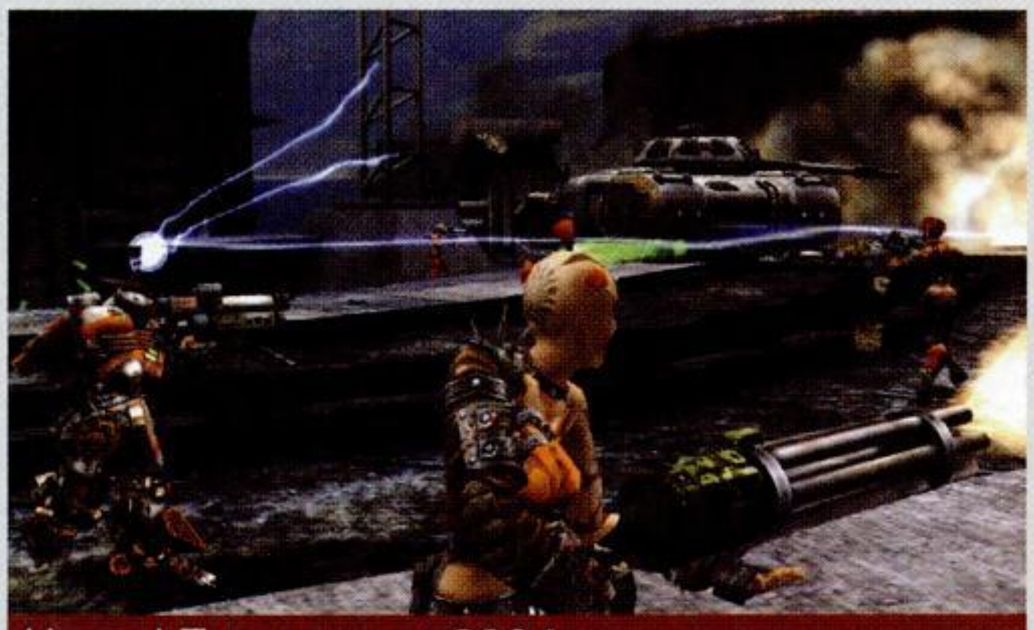
ON THE DISC

27 XP Utilities, 6 Essential Applications, 1 HUGE Game, and More!

GAMES

Unreal Tournament 2004 Demo

UT is back with a vengeance! This first-person shooter demo includes five different types of gameplay, including the all-new Onslaught mode and the old-favorite, Assault! There's even standard deathmatch and Capture the Flag, too.



Unreal Tournament 2004

APPLICATIONS

Paint Shop Pro 8.0

Paint Shop Pro 8 is a full-featured image-editing program that's easy to use and fun to boot! Use it to resize pics, tweak colors, remove red-eye, perform batch conversions—the sky is the limit!

MyDVD 5

MyDVD is the easiest way to make your very own DVD movies. You can capture video, easily edit clips, create menus, and even make DVD-style menus on CDs!

Norton Internet Security 2004

Keep your PC safe from hackers, and crackers with *Norton Internet Security 2004*. It includes a firewall, antivirus protection, privacy protection, spam protection, and parental-control tools.

Open Office

This totally free and really cool office suite features a word processor, spreadsheet, presentation tool, and more. It's fully compatible with every computer and, for its price (free), simply can't be beat!

Firegraphic 6

You've got a stockpile of digital images, but maybe you're not sure how to manage them. Perhaps you're queasy about enhancing photos or rotating them. Well, today is your lucky day because *Firegraphic* does all this and much, much more. Give it a whirl and you'll be hooked.

Mozilla Firefox

Named by the editorial staff of *Maximum PC* as the number one best software product of 2003, *Mozilla Firebird* is the first worthy challenger to the *Internet Explorer* juggernaut. It includes tabbed browsing, pop-up blocking, download management, and more!

UTILITIES

Space Monger

If your hard dive is filling up and you're not sure where all those gigabytes went, this utility will let you know. It presents a to-scale image of your hard drive showing all of its contents and how much space they are consuming. It's a must-have app for people looking to cleanse their drives or for people who like to keep tabs on how much space their "multimedia" directory is sucking up.

12Ghosts Wash

This small app wipes all traces of your computer activity from prying eyes, cleaning up web site history, temporary files, recent documents, and more. You can set up your preferences and then clean everything with just a single button click.

Ad-Aware 6 Personal Edition

Ad-Aware is possibly the most-used spyware cleaner on the planet. Run it often to keep your PC safe from would-be spies!

AntiVir Personal Edition

No one is safe from the viral onslaught that mars today's computing experience, so protect yourself with this free anti-virus software. It includes an Internet update function and can detect and remove more than 80,000 viruses.

Cacheman XP 1.1

CachemanXP is a system service designed to improve the performance of your computer by optimizing several caches, auto-recovering RAM, and fine-tuning a number of system settings. Auto-Optimization makes it suitable for novice and intermediate users, yet it is also powerful and versatile enough for computer experts.

CryptoSuite Demo v1.070

Need to hide some data from prying eyes? *CryptoSuite* lets you encrypt your data to protect it from "the man" or maybe "the wife." This 30-day trial version only encrypts data with 56-bit encryption versus 256-bit in the full version, and after the 30-day limit you will only be able to decrypt files.

CoolWebSearch Shredder

There's this nasty bug floating around the Internet that changes your home page to one named "CoolWebSearch." This utility is the best way to banish this evil spyware once and for all.

Ad-Aware 6.0

DesktopX

This fun utility lets you tweak your Windows interface out the wazoo. You can add elements to your desktop such as a calendar, stock ticker, swimming fish, bouncing balls, and more. The only limit is your imagination!

Exact Audio Copy

This audio ripper can make exact copies of your audio files (no kidding, right?) and is extremely useful to audio purists who crinkle their nose at 128Kbps bit rates. It supports all popular audio formats and is absolutely free!

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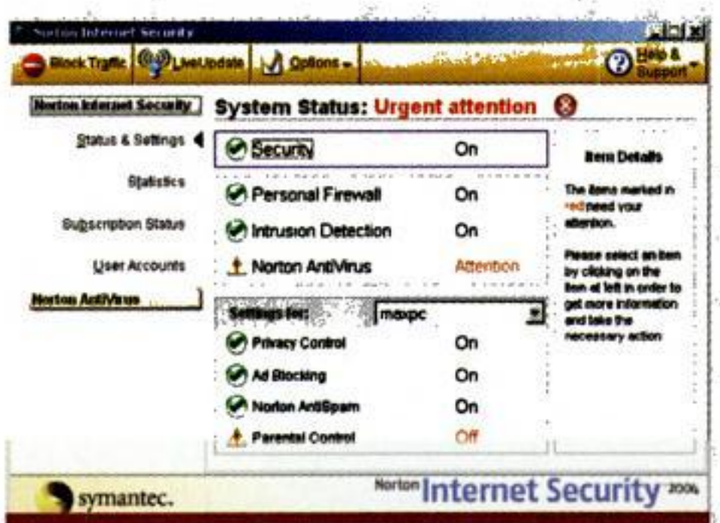
Jv16 PowerTools
Tweak your PC to your heart's content with this bundle of optimization tools. Use it to diagnose, monitor, and tune your PC!

Mailwasher Free
Keep your inbox minty fresh with this handy utility. It can bounce back offending missives so that spammers think your e-mail address doesn't exist, and it also has the ability to warn you of potential spam or viruses before you download them!



Norton Internet Security

OptimumXP
This easy-to-use utility includes over 150 tweaks and optimizations for Windows XP. Use it to optimize your CPU, RAM, hard drive, Internet connection, and more!

PopUpStopper
Nobody likes pop-up ads, or even their more nefarious relative—the pop-under ad. Eliminate them both with *PopUpStopper!* It can even clean your Internet cache and browser history as well as perform cookie-blocking duty.

Mailshell Anti-Spam demo
This is another great anti-spam utility that includes over 300,000 rules for blocking spam. It can block spammers who spoof domains, and it even allows you to block certain IPs. This is a 30-day trial version.

SmartbarXP
This useful app is a bar that docks to the side of your screen and lets you customize its content. You outfit it with a clock, quick-launch shortcuts, stock tickers, RSS news feeds, a picture slide show—the options are almost endless!

Webroot Spy Sweeper Free Version
In addition to *Spybot*, we also love *Spy Sweeper*. It roots out spyware, adware, Trojans, and any other malicious code that has no right to be on your hard drive. Think of it as a second layer of protection, like a fleece jacket on top of thermals in winter.

System Mechanic 4 Professional Trial
They should have named this utility the "kitchen sink." It does it all—disk defragging, Internet firewall duties, virus protection, privacy protection, system optimization, and more. This is a 30-day trial version.

T-Man
Check out the famous *T-Man!* It stands for "trash man," and it's a free Recycle Bin cleaner. You can set it to empty your trash every time you turn off your PC, or at a regular interval that you choose.

Wintools Pro
This system optimization utility allows you to enhance your PC's performance by tweaking the boot process, removing dead entries from your Registry, monitoring memory usage, and lots more.

WinZip 9 Trial
Everyone needs a zip utility to unzip files, so use the best—*WinZip*! This is the first thing you should install after a fresh install of Windows, so it's handy to have it on a disc and at the ready.

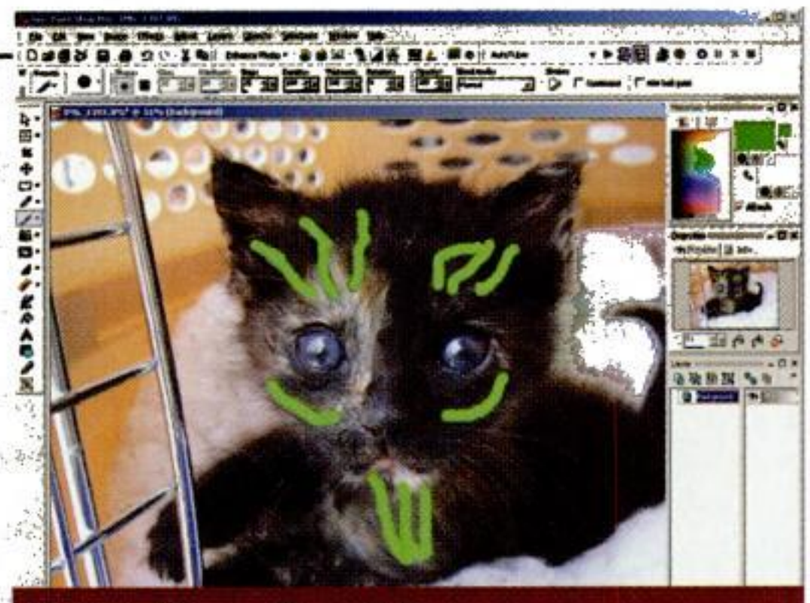
Winrar Trial
Other than *WinZip*, *Winrar* is the most-used Zip utility around. It can handle the often-seen RAR file, as well as Zip files.

Tweak Manager Demo
More than 1,000 useful tweaks are offered in this handy utility. Whether you're looking to improve your PC's performance or protect your computer from prying eyes, this app will let you do it.

Spybot Search and Destroy
Nobody likes spyware, so you have to run *Spybot*. We think it's the best spyware application available because it is constantly updated, totally free, and ruthlessly effective. Run it at least once a week, or else.

XP Tune Up
As the name implies, this tweaking tool exposes all kinds of hard-to-find options in Windows XP to make your system faster, safer, and more stable.

X-Setup Pro
Known as the "black belt system tuning utility," *X-Setup* opens up numerous "hidden" system tweaks that would normally involve serious Registry hacking. It includes more than 1,500 tweaks for your system and is easy to use.


Paint Shop Pro 8.0

Zone Alarm Free Edition
Zone Alarm is one of our favorite privacy and intrusion-detection systems. It protects your PC from incoming hackers, prevents unauthorized access to your PC's data, and also protects against viruses, Trojans, and all the other bad stuff out there. Not only is it effective against hackers, it's also easy to use.

Folder Guard Pro 6 Trial
Protect your precious data with *Folder Guard!* It lets you restrict access to your computer's resources and files. It can be used if you are sharing a network with other people and want to hide your files, or if you share a PC with other people and just want to keep your files safe.

▶EXTRAS

DivX Encoder and Player
DivX is the most popular video compression codec around these days, so you'll need this decoder to watch DivX videos. You can encode video with it as well. Either way, this is a codec you can't live with out.

ATI Catalyst Remover
If you are upgrading your ATI Catalyst drivers, you should run this first to wipe the slate clean, so to speak. You should also use *SmartGart Remover* (below).

ATI SmartGart Remover
If you are removing ATI video drivers from your system, it's a good idea to remove the SmartGart drivers as well. After you run the *Catalyst Remover*, run this app as well to make sure all drivers have been eradicated.

nVidia Forceware 56.72 Video Driver
The latest Windows XP/2K drivers for nVidia-based graphics cards.

ATI Catalyst Drivers v 4.4
The latest Windows XP/2K drivers for ATI Radeon-based videocards.

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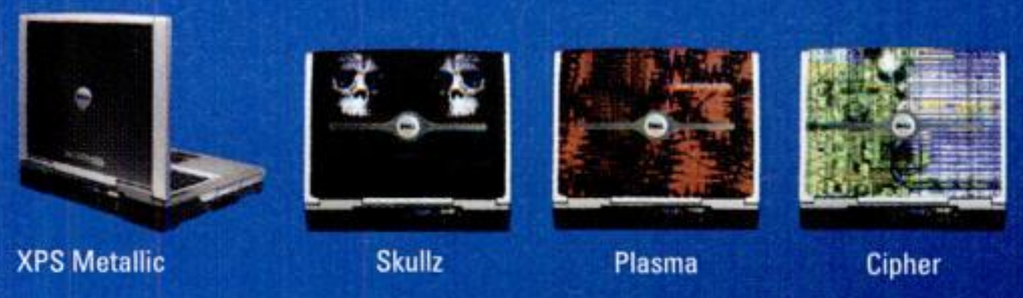

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Windows XP Demystified and Dissected!

Before we can crack into XP, we must first understand whence it came!

Windows Timeline

Microsoft shipped Windows 3.0 in 1990, but it wasn't until Windows 3.1 shipped that the industry began to accept the concept of a GUI on PC-compatible computers.

Microsoft launched Windows 95 with incredible fanfare in 1995. The OS really was a leap ahead from Windows 3.1, but it still couldn't hold a candle to the Macintosh OS.

1983	1985	1987	1990	1993	1995	1996
MICROSOFT ANNOUNCES PLANS TO CREATE A GUI-BASED OS	WINDOWS 1.0	WINDOWS 2.0	WINDOWS 3.0	WINDOWS NT 3.1	WINDOWS 95	WINDOWS NT WORKSTATION

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When XP was unleashed upon the masses in 2001, it proved itself to be the most stable, most flexible, and most attractive version of Bill's vaunted Windows OS to date. That's not to say XP is without its share of problems, annoyances, and challenges. It's just that while we all like to give Microsoft a hard time for what it does wrong, you have to give up some props for how well XP runs right out of the box.

Nowadays, thanks to XP, the Blue Screen of Death is all but a thing of the past, reserved mostly for truly traumatic events such as hardware failures, CPU mishaps, viruses, and random acts of God. So how does XP achieve this newfound level of stability? And how do we crack into it? Read on.

Blended OS

For years, MS has published two distinct versions of its OS: A more stable and secure—and harder to use—version for the corporate world called Windows NT, and a more user-friendly, "multimedia-ready" version, known as the Windows 9x series, for the average Joe. Windows XP takes these two previously disparate paths and merges them into a single OS, maintaining each platform's strengths. As a result, Windows XP—the XP stands for Experience, by the way—boasts the inherent stability and security strengths of NT's kernel (or code base; for more on this, see "Cracking the XP Kernel" on page 12) served up in Windows 9x's attractive, easy-to-use shell.

To avoid turning Windows XP into a jack of all trades but master of none, Microsoft split the OS into several different versions: Windows XP Home, Professional, Media Center, and Tablet PC. Each edition shares a similar interface and runs the same software, but each specializes in delivering functionality for a specific audience. We'll be focusing on the two most popular editions here: Home and Professional. The primary difference between these two is that the Professional version is targeted at corporate users, and thus includes stronger security, backup, and networking features. Otherwise, it's identical to Home (unless otherwise noted). Most of the tips you'll find here will serve for both versions.

Window Panes

Regardless of which version you use, the new dynamic task-based user interface is the most immediately apparent and truly special aspect of XP, particularly to long-time Windows veterans—easily recognizable by their unbridled cynicism. Each opened window includes a new task pane that makes it easier for novices and old-timers alike to find files, features, and functions without hunting for them.

For example, open a folder using Windows Explorer and click a document file. The task pane will present you with options to e-mail, print, or publish the file on the World Wide Web. Click a digital photo file, and you'll be given the option to print the picture, create a slide show, or even order a print from an online service.

XP also makes it easier to find new files you create, too. Pen a new document with *Word* and the program will automatically prompt you to save it in the My Documents folder. Similarly, pictures and downloaded files will route to the My Pictures and My Downloads directories, respectively.

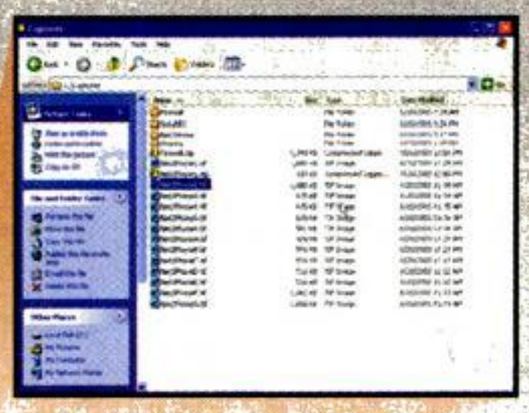
Have XP Your Way

What's that you say? You don't want to save your files to the designated areas and you don't want to always manually locate your own directories? No problem, we'll show you how to customize your folder settings later (see page 70). This brings us to what we really consider to be XP's greatest strength—its unparalleled level of customizability, at least when compared to previous versions of Windows.

Sure, WinXP is slick right out of the box. And once you get used to the basics of the new interface, it's easy to stick with the status quo, put up with all of XP's default settings, and bend to its will. But this is your PC and your OS, right? Bend it to *your* will—take control of Windows XP, today.

Throughout the following sections, which are jam-packed with tips and tricks—including many undocumented "hacks" and secrets about WinXP that Microsoft would rather you did not know, *Maximum PC* will show you exactly how to master the latest Windows OS in six straightforward steps. From tweaking how XP looks to hacking into the core of its Registry for customized operation, you'll find that there's much more to WinXP mastery than meets the eye. Your path to enlightenment begins here.

Windows 98 was an evolutionary step ahead for Microsoft, but most of the really important features, such as the Registry Checker, were hidden beneath the surface.

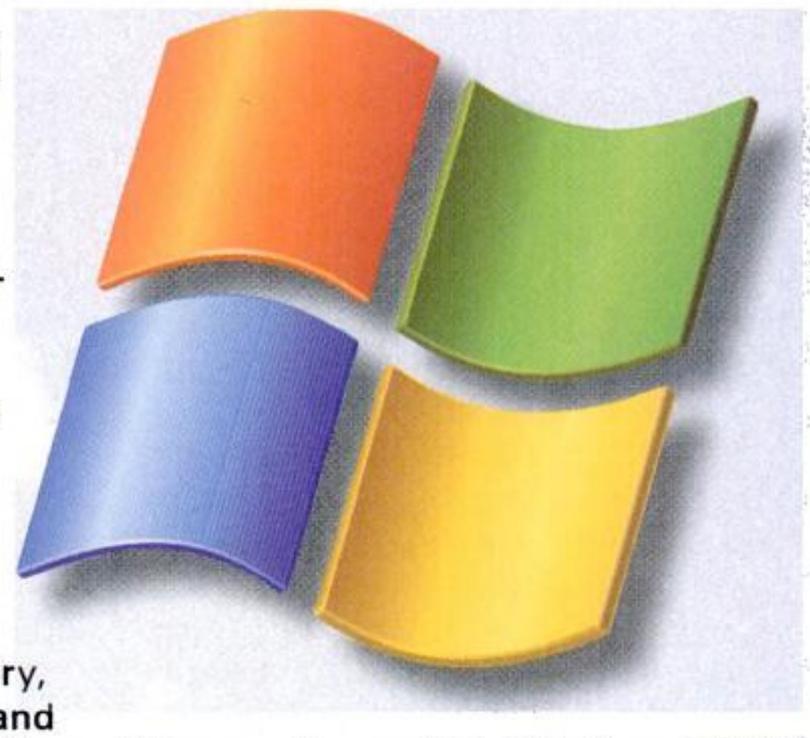


Released in 2001, Windows XP represented a dramatic departure from previous versions of Windows. The dynamic task-based user interface made critical features much more accessible.

1998	1999	2000	2001	2002	2003	2006?
WINDOWS 98	WINDOWS 98 SECOND EDITION	WINDOWS ME AND WINDOWS 2000	WINDOWS XP HOME AND PROFESSIONAL EDITIONS	WINDOWS XP MEDIA CENTER AND TABLET PC EDITIONS	WINDOWS XP "LONGHORN" PREVIEW	OFFICIAL RELEASE OF WINDOWS "LONGHORN"

Cracking the XP Kernel

Maximum PC dives under Windows XP's hood to show you what makes it tick!



For Windows 2000 users, Windows XP is an update with a new interface and some neat tools. Anyone moving up to XP from Windows 98 or ME is getting a brand-new operating system. You won't see the "Powered by NT" line on the box anymore, but an improved and updated version of the NT/Windows 2000 kernel lives at the heart of XP.

Think of the kernel as the engine of the operating system; it's the code that loads first, always stays in main memory, runs with special privileges on the processor, and provides the services that the rest of Windows and all of your applications use, such as managing memory and communications between your hardware and software.

The kernel is also responsible for doling out CPU resources to all of the applications you may be running simultaneously. The kernel uses "preemptive multitasking" to allot a share of processor time to each open app, and it also prevents any single program from monopolizing 100 percent of the CPU's resources.

In through the I/O Memory Door

All communications within Windows go through the kernel's Input/Output subsystem. Every device, driver, program, service, and Windows process has to have memory to run, and it gets that from the kernel's I/O process. Allocating and managing memory is vital to the way an operating system performs, and XP's kernel is much more robust than Windows 98 in this area. This new kernel features a "protected memory" procedure that gives each application or running process its own distinct area of memory to operate in. If said application or process crashes, it will not—in most cases—affect other software that may be running, including Windows itself. Windows can shut down the crashed program and reclaim its memory. In contrast, Win 98 had one memory space where applications had to fight for attention, and when one application crashed it tended to topple the whole house of cards.

Turn the Page: How XP Manages Memory

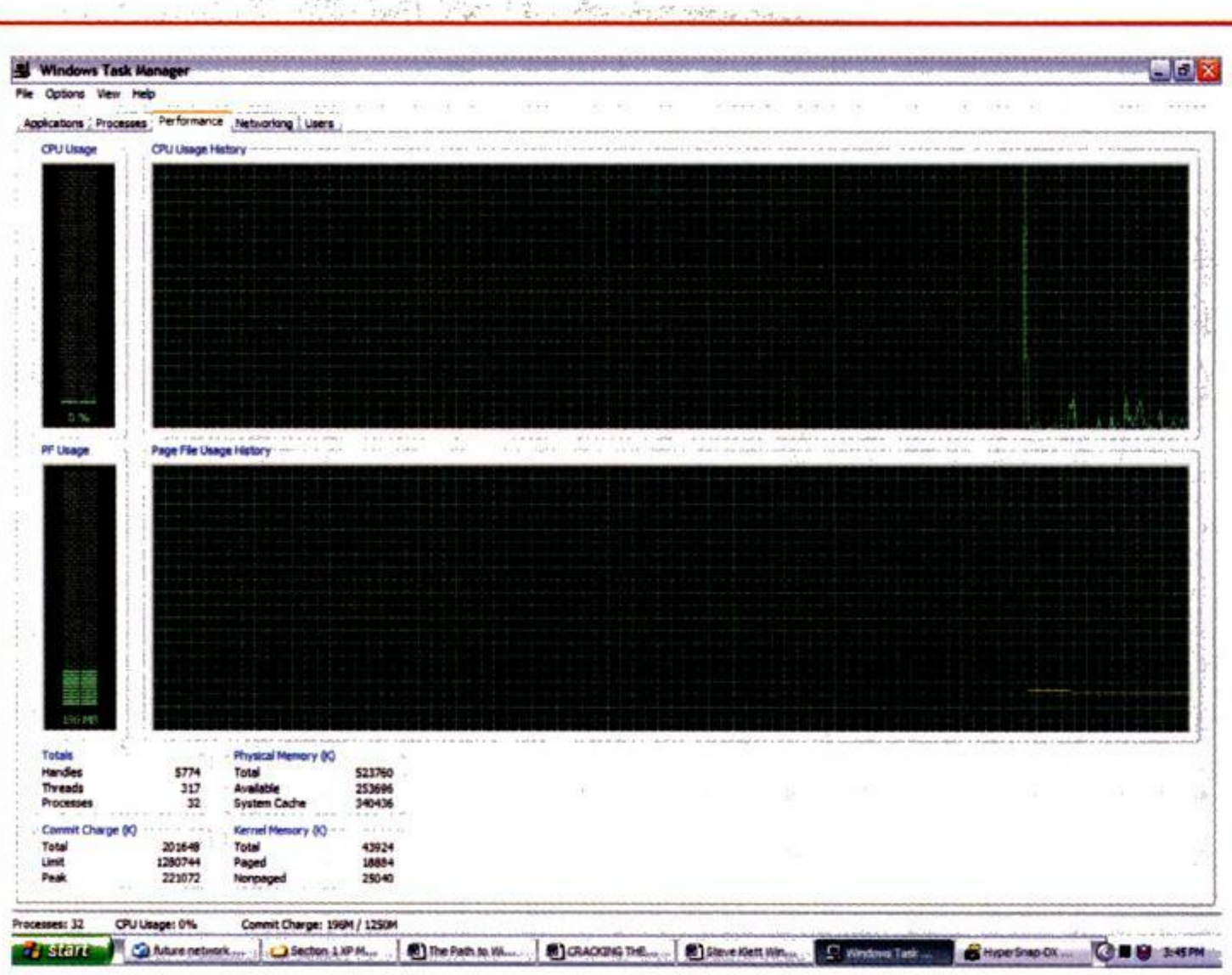
No matter how much physical memory you have—and we'd say 512MB is the minimum these days to get the most out of XP—there's never enough.

Because of this, Windows uses hard-disk space as "virtual memory." Windows uses physical memory—RAM—for code that needs to run the fastest, such as the virtual memory manager itself. The rest of your RAM is split up and matched to files being accessed on your hard disk. Each of these files is 4k in size and represents "one page" of memory, which Windows can "swap" to disk and back as you use one program or another. Windows tracks these files with a list of Page Table entries, and XP can track nearly 1.3GB worth of entries at a time, which is twice that of Windows 2000. This naturally translates into faster program response times for you.

XP is also better at working out which memory pages to load next so it spends less time loading information from disk; it no longer allocates more Page Table entries for storing files than the files actually need, and if an application has asked for more memory than it needs to run, XP can reclaim the unused portion for other programs.

The kernel's ability to manage memory is most crucial when your PC is running out of it, and XP raises the bar in this regard as well. In Windows 98/ME, a driver—and the Windows kernel—could demand memory even if there wasn't any available. If Windows couldn't allocate the memory, your system would hang, and you'd get the dreaded Blue Screen of Death. XP's kernel no longer allows these requests. As XP runs low on memory, it slows down passing information from memory to disk and back until there's more free memory. This also allows you to Alt-Tab between open apps to find one you can close without crashing the system.

These are just some of the primary upgrades the Windows kernel has received courtesy of XP. As you can see, WinXP's much more than just an update to Windows—it's a complete overhaul.



WinXP can manage 1.3GB of data at a time, which is twice that of Windows 2000. You can use the Task Manager to see everything XP's kernel is up to.

Windows XP Service Pack 2:
Improved Security, Wireless, and More!

We take an early look at Win XP's biggest upgrade yet and come away impressed with its enhanced security—and decreased annoyances

Microsoft is putting the finishing touches on a massive upgrade for Windows XP that addresses numerous security concerns, Wi-Fi connectivity, *Internet Explorer*, and even *Outlook Express*.

At press time, SP2 Beta was being tested by registered Microsoft developers for potential release in July. We got our hands on that same beta and what we saw impressed us. Here are nine reasons why we'll be lining up to upgrade Windows XP on day one of SP2's release.

1

Messenger service is now off. Microsoft's insidious Messenger service, intended for network admins but most commonly known for its "UNIVERSITY DIPLOMA" pop-up spam, will be turned off by default.

2

A more powerful and configurable firewall. In SP2, Windows Firewall utilizes a more professional interface and now asks permit-or-deny questions about programs making unauthorized network connections. The firewall also runs during bootup. Service Pack 1's firewall doesn't, which leaves a gap of vulnerability between the time Windows comes alive and the firewall service kicks in.

3

Improved Internet Explorer. For the first time in ages, Microsoft is substantially improving *IE*. The most significant additions are a built-in pop-up blocker and a "Manage Add-Ons" screen that lets you examine the third-party code modules that have integrated themselves with your browser. Troublesome modules (read: spyware) can be disabled, and *IE* now tracks crashes more carefully to help programmers debug problems. Furthermore, modules should have a harder time integrating themselves with *IE* without your knowledge or permission.

4

Simpler and more convenient Wi-Fi access. Win XP's wireless LAN client gets a new, streamlined look here. The original version became hard to manage as Windows discovered and kept track of more than a few access point configurations. Microsoft has also preconfigured hotspot profiles to make logging into various national services like Starbucks easier. An Automatic Connection feature allows you to easily hook into your preferred networks whenever you're in range. Finally, Bluetooth support now works better for simple connections like keyboards, mice, and PDA links, and shouldn't require external software to activate.

5

Local content zone lockouts. *Internet Explorer* will be more cautious about the permissions it gives to HTML files considered part of the "local content" zone. In the past, tricksters have loaded malicious code that never would have gotten through your web connection to your hard drive and prompted the browser to open the code from there. ActiveX and similar functions will be disabled by default for such local files, making it harder to develop and execute web Trojans.

6

Safer e-mail handling technologies. *Outlook Express* will include a plain text mode that will let you render incoming messages in plain text instead of HTML. This "rich edit control" mode—as opposed to Microsoft's MSHTML control method for HTML e-mail—should provide an additional barrier of effective protection against malicious code that is often transmitted via e-mail. In this mode, *Outlook Express* will not automatically execute infected HTML header scripts.

7

Buffer overruns get clamped down. Microsoft says SP2 clamps off a number of potential buffer overruns. These occur when hackers exploit an unchecked buffer in your program and overwrite the code with their own malicious code, which can take down a system faster than you can say "D'oh!" Time will tell.

8

Improved Windows Update. Microsoft's automatic update service receives a facelift in SP2, as well as the added ability to resume interrupted downloads. Because the rapid spread of viruses is largely a result of the high number of systems that aren't promptly patched, avoiding automatic update reminders will be discouraged.

9

Numerous internal changes. While SP2 also incorporates a slew of internal changes that mostly affect developers, one change we're closely watching is Execution Protection. This should help keep your programs running more smoothly in 64-bit or hybrid 32/64-bit environments. Given the very real potential for instability when 32- and 64-bit drivers get mixed, as well as the potential for certain 64-bit applications to crash when running on a system with huge memory capacities, Execution Protection may turn out to be one of the major perks for power users in SP2.

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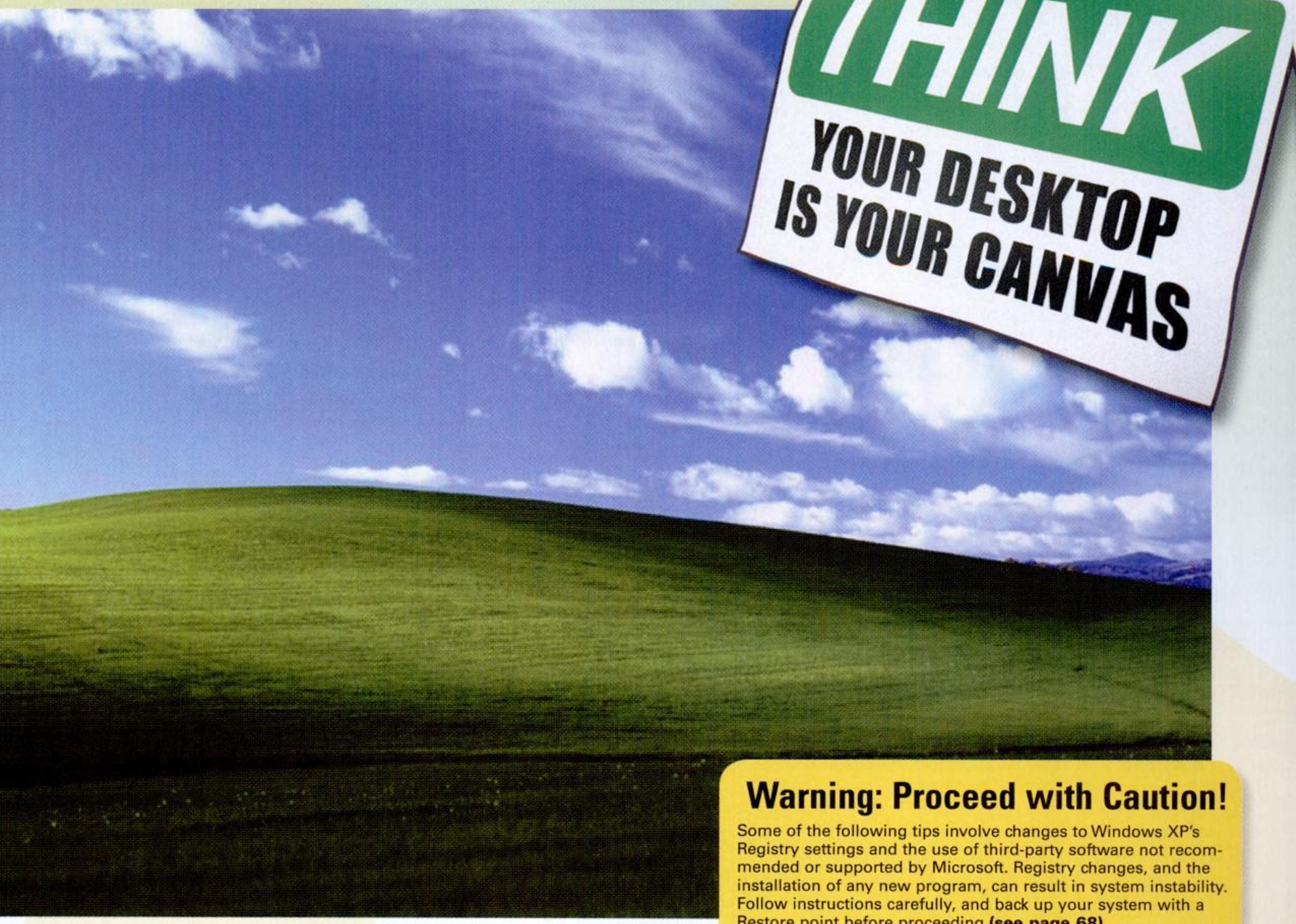
Step One

Customize Your Interface!

Who wants their desktop to look like everyone else's? Not us, and hopefully not you. Follow these tips to give your desktop a radical overhaul!



Warning: Proceed with Caution!

Some of the following tips involve changes to Windows XP's Registry settings and the use of third-party software not recommended or supported by Microsoft. Registry changes, and the installation of any new program, can result in system instability. Follow instructions carefully, and back up your system with a Restore point before proceeding **(see page 68)**.

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Howard Stern's fisticuffs with the FCC aside, freedom of expression and speech form the bedrock upon which this country was formed, and remains the tenant that the majority of us hold most dear. For some of us, it's the way we dress or style our hair. For others, it's body piercing and tattoos. Or it's as simple as the shoes we wear to a job interview, or the fuzzy dice hanging from the rear-view mirror of our cars. Regardless, most of us take advantage of these rights in some fashion, *every* day.

With this in mind, it's puzzling why so many people are content to let Microsoft dictate how their PC looks and feels. For shame! WinXP may be the slickest-looking form of Windows yet, but that doesn't mean it can't look better, or be made to conform to your personal style. One of XP's greatest and often-overlooked strengths is its flexibility in enabling us to exercise our expressive freedoms.

Thankfully, the first step in achieving true Power User status is also the easiest. There's a virtual cornucopia of simple ways to alter the appearance of your desktop. Your options range from basic tweaks using XP's built-in tools to total makeovers accomplished via third-party software. In some cases, you'll be able to hack XP's code to bend Windows to your will. From customizing the way your interface looks to adding a second monitor to expand your desktop real estate, we'll focus on showing you how to do things with your desktop that Microsoft would never tell you—and may even prefer you never heard about!

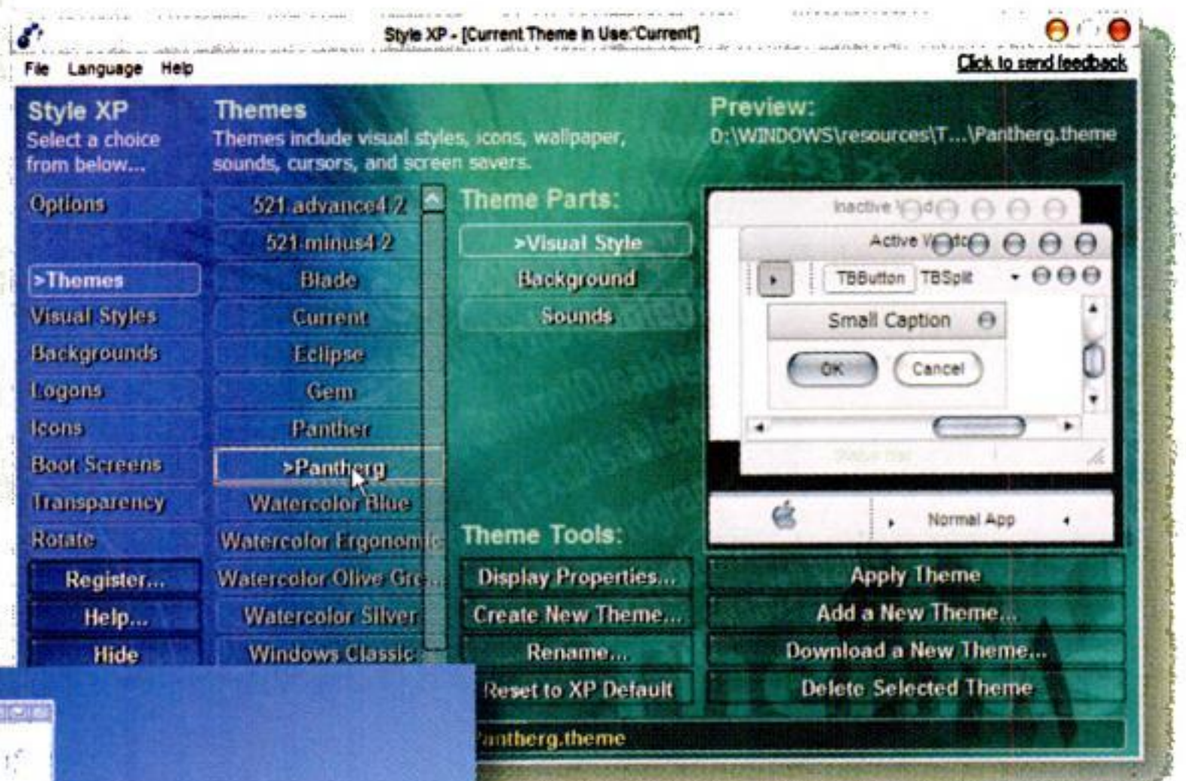
But before we jump into the thick of things, a quick note. We're assuming that you have some basic familiarity with changing XP's default desktop wallpapers, colors, and effects—this is a *Maximum PC* publication after all! For excellent walkthroughs on these basic elements, go to: www.microsoft.com and search under "customize your computer."

Tip One:

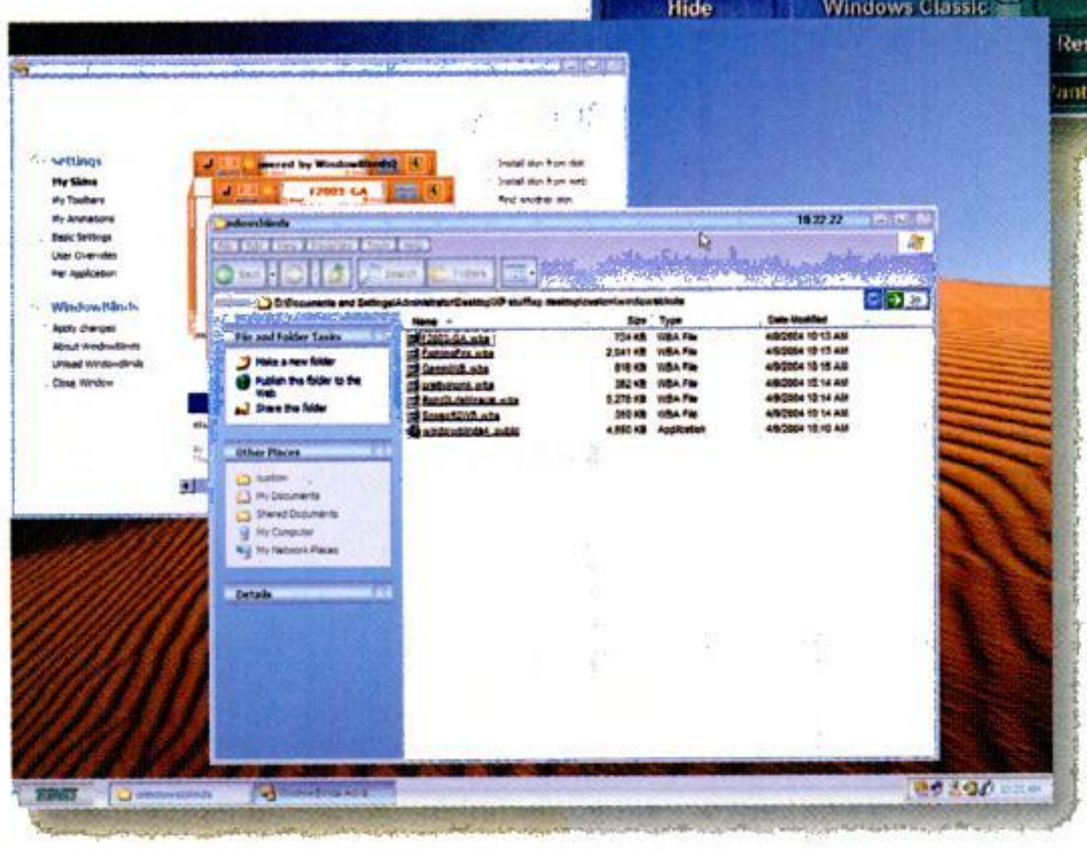
Give the Windows Desktop a Whole New Look!

You can use XP's Display Properties options to design your own themes from scratch, but wouldn't it be nice if there was a program out there that incorporated different theme/visual style templates and let you have all the fun while it did all the work? Well there are a few, of which *StyleXP* is perhaps the most useful, and easiest to use. Download a copy at www.tgtsoft.com and then hit up www.themexp.org for a bevy of visual styles to fit all tastes. You can select entire desktop themes, or just individual elements such as new mouse cursors. Once downloaded, unzip these elements to C:\Windows\Resources\Themes. Now you can select them from the Display Properties section of the Display Panel under appearances.

WindowsBlinds is another popular program for accomplishing the same effect, though it's limited to themes and visual styles, whereas *StyleXP* helps you tweak other areas of the desktop. However, due to a partnership between Microsoft and Stardock, the maker of *WindowsBlinds*, the app is integrated with XP's Display Properties control panel. You just have to download the program, and you instantly gain access to an array of new themes and visual styles.



StyleXP is a handy utility for applying massive makeovers to Windows XP.



WindowsBlinds integrates with XP's built in display options to give you more pre-fab themes and styles to choose from.

Tip Two:

Customize Your Account Icon

New themes are nice, but let's go a step further and change the default logon picture for your account by going to Start Menu, Control Panel, User Accounts. Click the account you wish to change, and select "Change my picture." You could choose one of the many generic premade options available at this screen, but that's dull, dull, dull! Instead select "browse for more pictures" and navigate to the image you'd like to use. XP will resize it for you. This image will appear on the Welcome screen for your account, as well as at the top of the Start Menu.

Ditch XP's pre-fab picture for your account in favor of some home-cooked options, like a pic of your dog.

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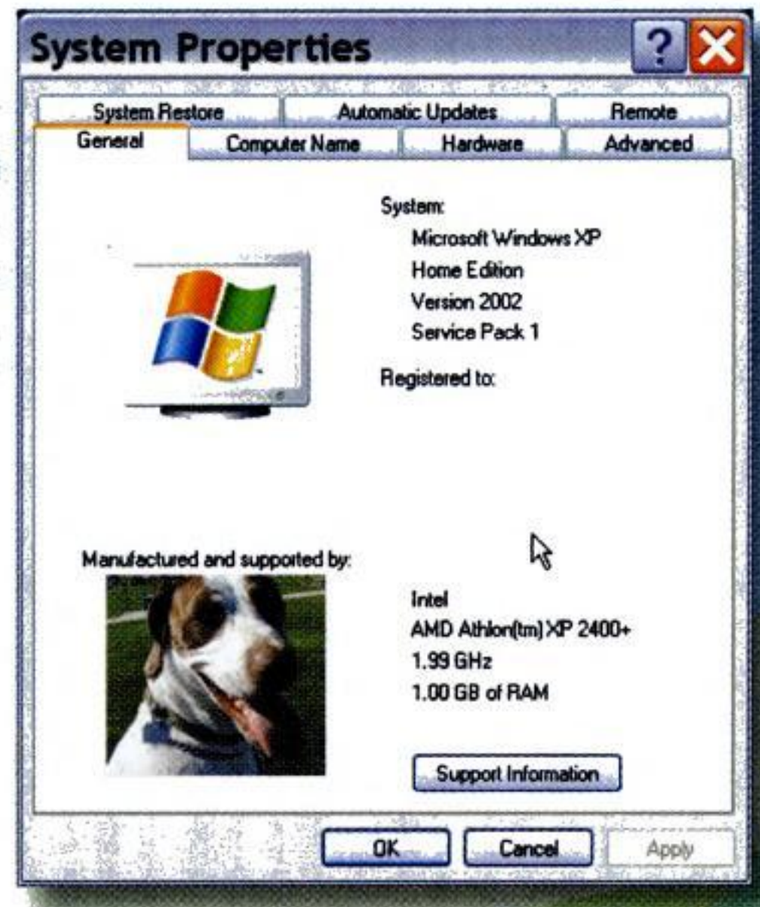
Tip Three:

Add an Image to Your System Control Panel

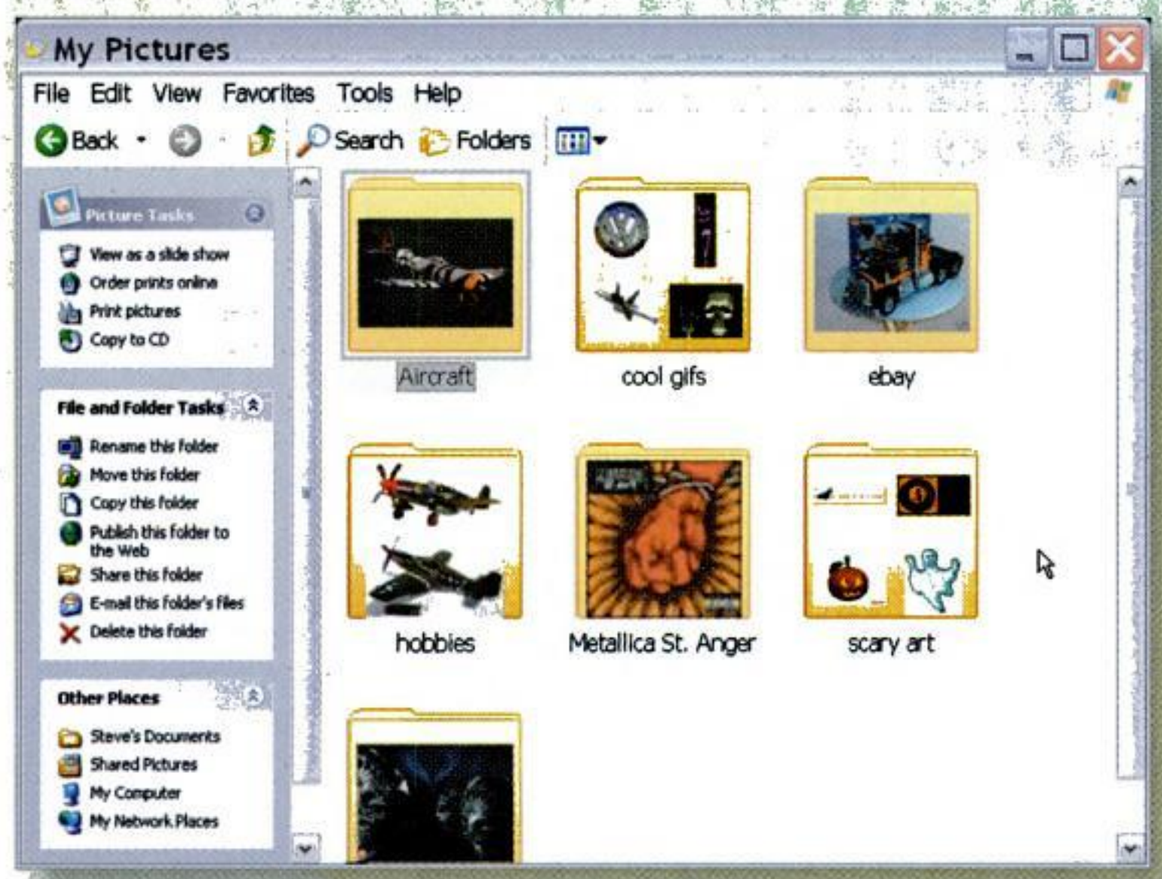
This tweak is a little more involved, and thus, a little more cool. Display any picture you'd like along with custom text in the System control panel by following these steps. First, take the image you want to use and resize it to 125 x 125 pixels (use the evaluation version of *PaintShop Pro*, which is on the CD-ROM that came with this issue), save it as "oemlogo.bmp," and copy it to C:\Windows\System32. Next open *Notepad* (Start Menu, All Programs, Accessories, Notepad) and type the following:

```
[General]
Manufacturer=
Model=
[Support Information]
Line1=
Line2=
Line3=
```

Fill in the lines after the equal signs with whatever text you wish, and save it as "oeminfo.ini" in the same C:\Windows\System32 folder. Now, right-click My Computer, select properties, and check out your work!



PC makers usually put their logo stamp in this space, but you can put your own logo here, too.



Tip Four:

Add Album Art to Music Folders

Windows XP will automatically add an album image to a folder housing music files as long as they're in Windows Media Audio format. If you're keen on using MP3 files for your digital music—most of the world is—you can still get the same effect. First, go to www.amazon.com and find the album you want to customize. Right-click its image, select "Save As," and save it in the folder containing the MP3 files for that album, then name it "folder.jpg." Now the folder will display the album image instead of the boring old folder icon. Pretty cool, huh? The same trick can be applied to your My Pictures folder, as well. Just make sure you're in the Thumbnail view or this trick won't work (in Explorer select View, Thumbnails).

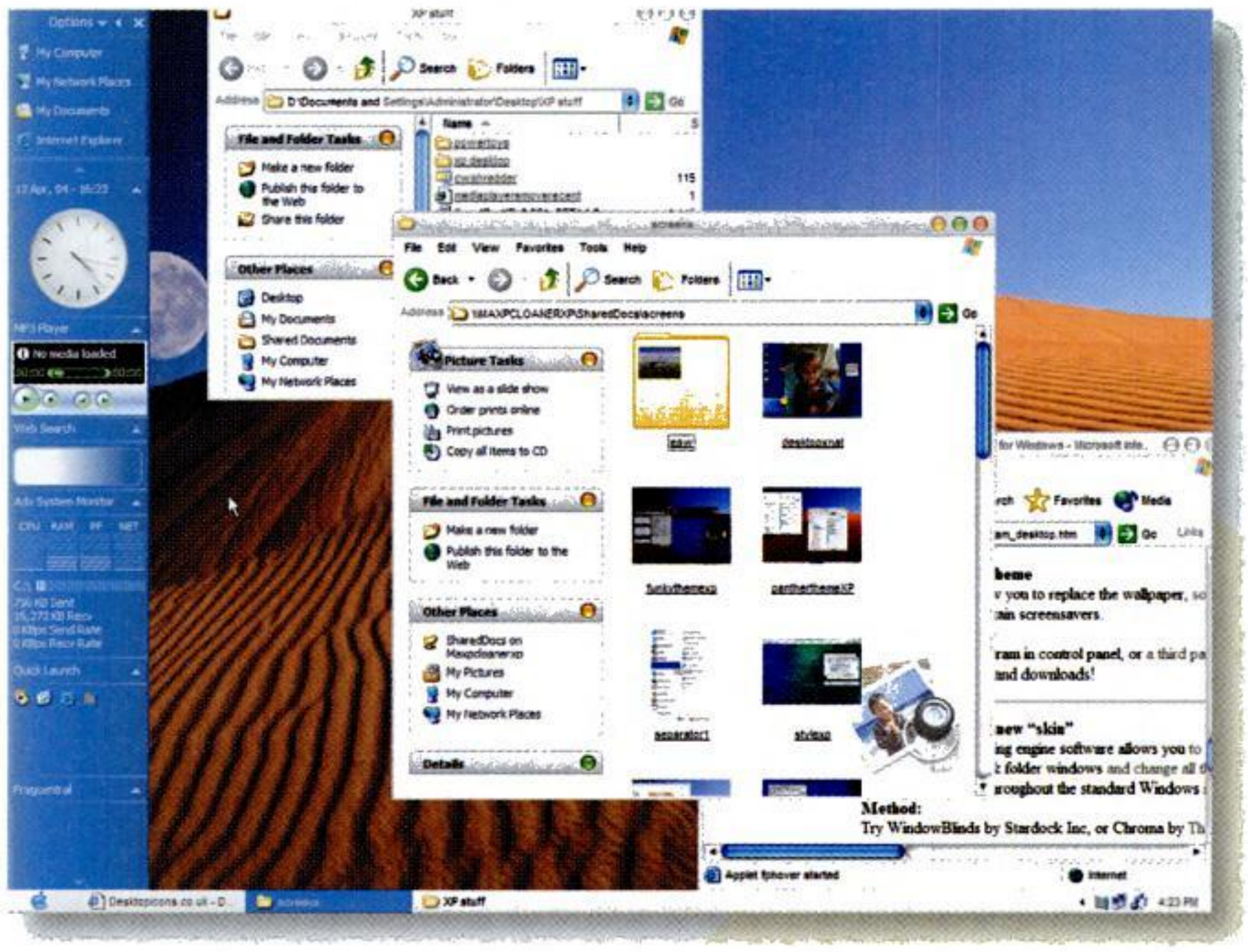
Rename any image inside a folder to "folder.jpg" and it will appear instead of the folder icon!

Tip Five:

Get a Taste of Windows Longhorn Today, with SmartbarXP!

The next version of Windows, code named Longhorn and due in 2006, will have a new Quick Launch bar docked to the side of the screen that may be used to display time and weather, host tickers, and display memory, CPU, swap file, and network activity, as well as perform standard Quick Launch duties. But why wait? You can give the concept a whirl today thanks to a freeware app named *SmartbarXP*, which you can find on the disk under the "Apps" section. Give it a shot!

Why wait until 2006 to try out one of Longhorn's new features, the "sidebar," when you can test it out now?



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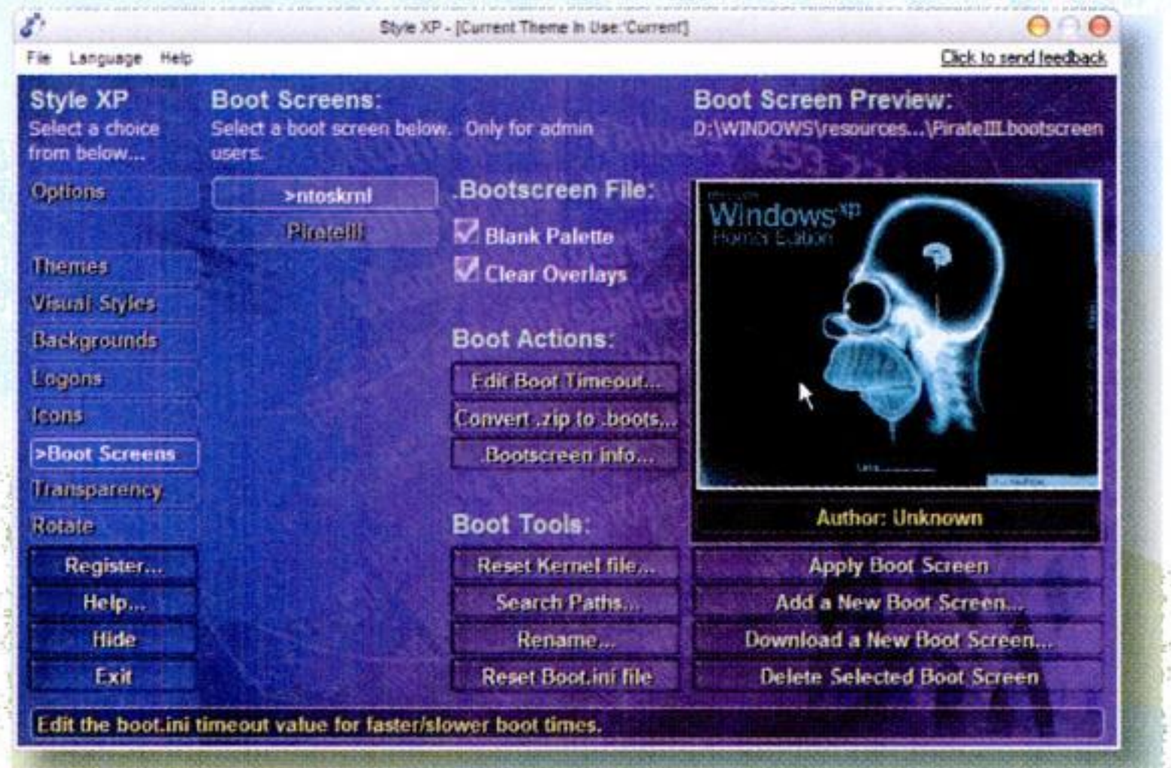
Tip Six:

Change your Bootscreen Image!

StyleXP is useful for much more than just applying new visual themes. It can also help you change the dull background image for the Windows logon screen. This hack has required blood, sweat, and tears to execute, but now *StyleXP* takes most of the work out of the equation. We still recommend you set a new restore point before proceeding, as the process does rename default Windows files and can result in instability if not done 100 percent correctly (see page 68). Applying a new boot screen is as simple as downloading one to your desktop, pointing *StyleXP*'s browser to the file, and hitting "Apply." Presto—welcome to Win XP Homer Simpson Edition!



Altering your boot screen can be tricky, but utilities such as StyleXP *make it safe and easy to accomplish.*

Tip Seven:

Change Your Logon Screen Image

While we're at it, you should also learn how to set a custom image for your logon screen as well. This time, you'll have to do it manually, though you can also use *StyleXP* or a similar program if you wish. First, find the Logonui.exe file in C:\Windows\System32 and save a copy in another folder on your hard drive. Next, browse to www.themexp.com. Download a logon screen and extract its contents, which will include a new Logonui.exe file, into a temporary folder on your desktop. Reboot your PC in Safe mode by holding down F8 and restarting, and copy the new Logonui.exe file to C:\Windows\System32 replacing the existing, original Logonui.exe file, which you've backed up. Now restart your PC, and your new logon screen will appear.

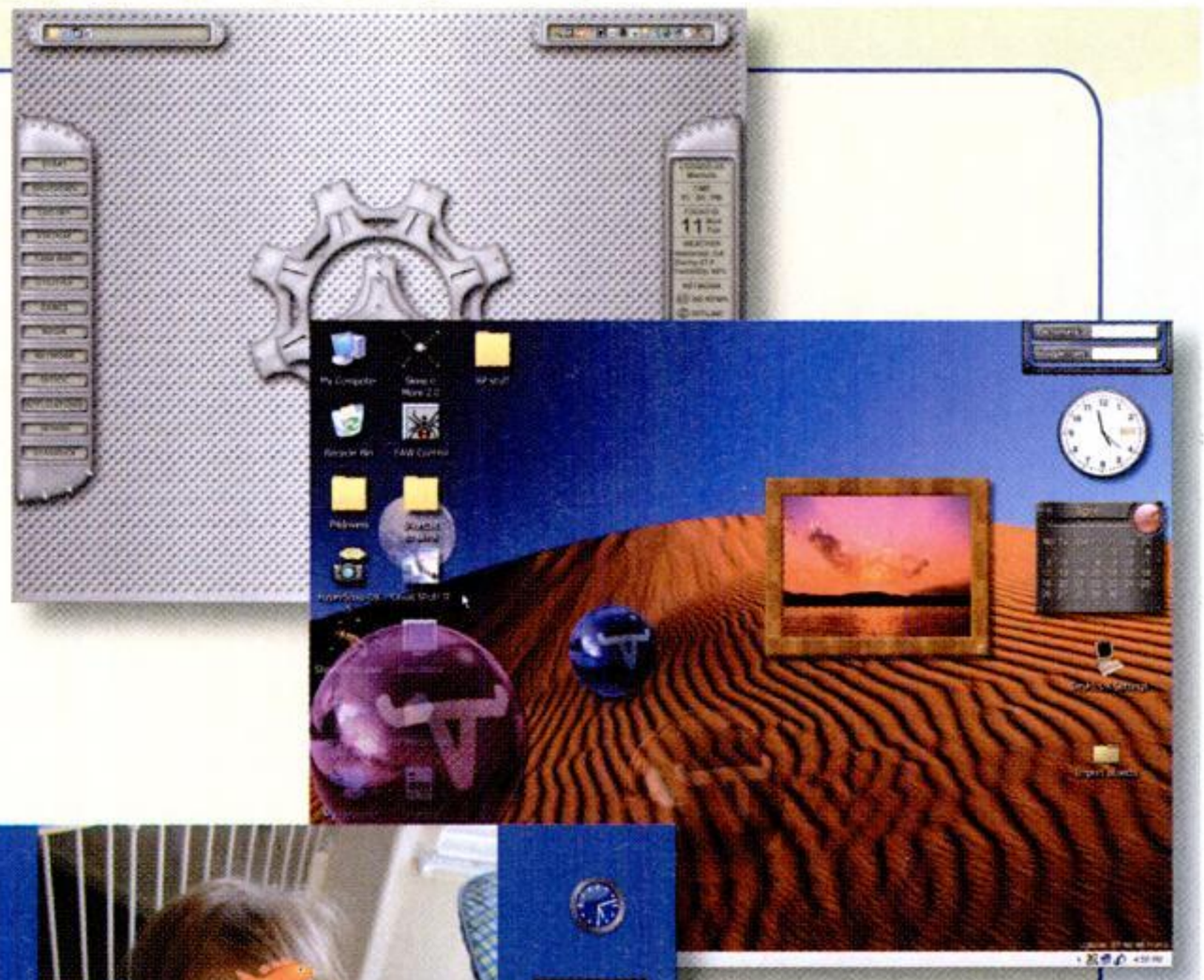
XP's default logon screen is boring, unless you're in love with blue. Change it to suit your personality.

Get a 007 PC with DesktopX!

Turn your PC into the equivalent of James Bond with a nifty little program called *DesktopX* from Stardock, the company responsible for *WindowsBlinds*. With *DesktopX* you can outfit your desktop with all manner of objects, called "widgets," which perform a slew of useful or simply entertaining functions. These widgets range from balls you can toss around your screen to next-generation Windows Longhorn-style sidebars to weather stations, resource monitoring tools, and even fish that swim around your screen.

The free evaluation version (**www.stardock.com**) allows you to experiment with a generous array of toys. Upgrading to the full version will open up even more gadgets and desktop-customization options, such as allowing you to build your own widgets from scratch and design a completely new desktop.

DesktopX is not for the faint of heart. Using the various objects often requires patience and a trial-and-error approach; it all depends on the skills of the authors who scripted the objects you download. You will also likely encounter some DirectX compatibility issues—particularly with older programs or other GUI-tweaking apps. If you do, unloading the program from memory via the taskbar usually resolves most issues.



With DesktopX *you can add all sorts of James Bond-style gadgets to XP's desktop, or give it a total redesign.*

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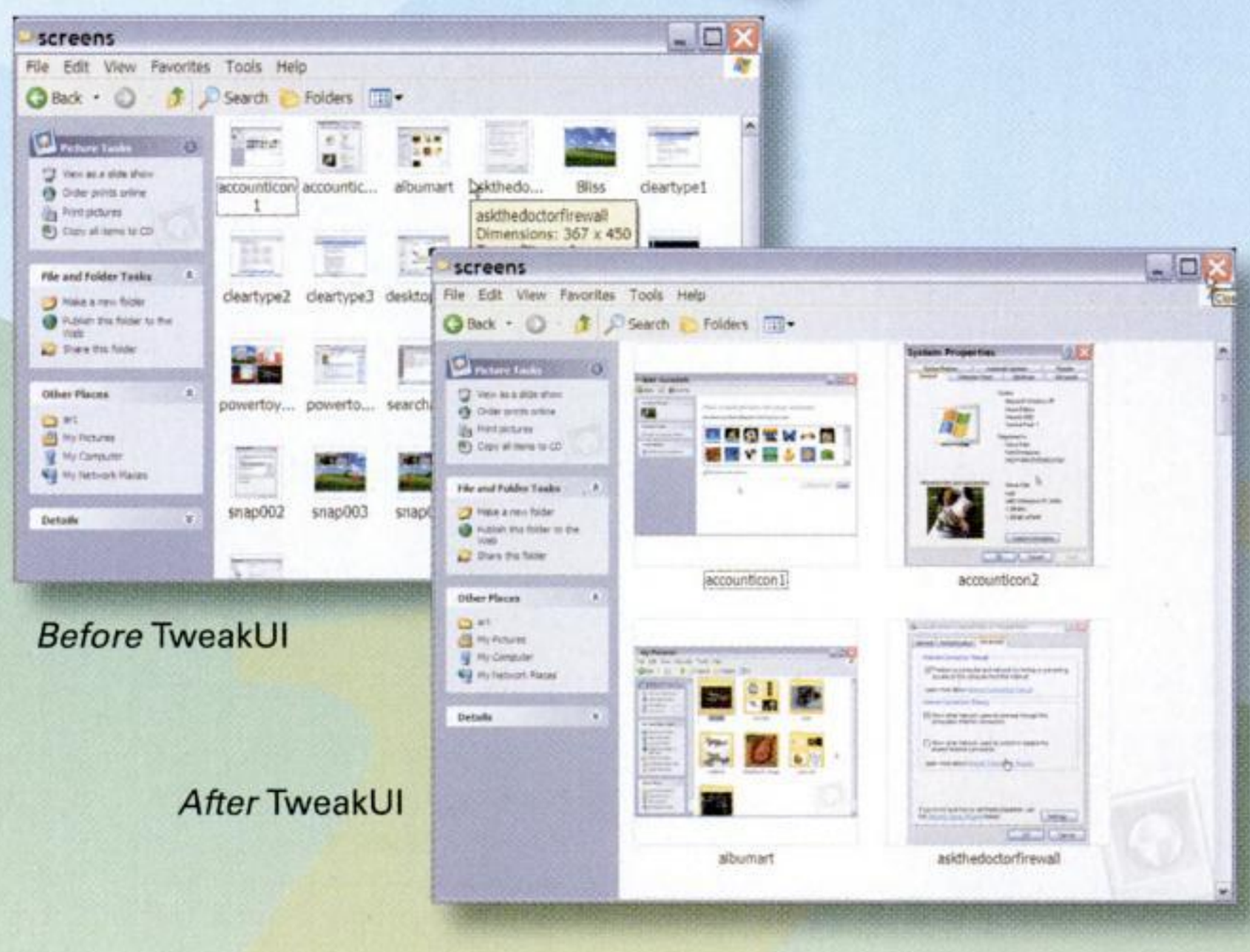

Before TweakUI

After TweakUI

Tip Eight:
Customize Thumbnail Size

The thumbnail view option in XP's swanky new version of Explorer lets you easily view suites of images. However, the default setting for the thumbs' image size may be tough on the eyes, particularly when your desktop is set to higher resolutions. You can alter the default size to your liking via the Registry, but that's needlessly difficult. Go to www.microsoft.com/windowsxp/pro/downloads/powertoys.asp and download *TweakUI*, which we'll discuss in more detail later (for more on *Powertoys*, see page 78). Open the Explorer tab and select Thumbnails. Change the pixel size of the thumbs from the default setting of 56 to a number between 32 and 256. Note: Enlarging the thumbs can slow down performance on slower machines. However, you can also tweak the image quality with the slider (located just above the pixel setting) to match the display capabilities of your machine.

Tip Nine:
Customize Default Window Title Size

We'll say it again: XP's default "Luna" interface looks great, but does come with trade-offs. For instance, if you have a smaller monitor, the default settings for Windows' title bars and the Open, Close, and Minimize control settings consume way too much screen real estate. To change them to a smaller, more friendly size for your desktop, go the Display control panel (right-click your desktop and choose Properties) and select Advanced. Now click on the bar of one of the sample windows and the Item and Font options should become active; if not, select Active Title Bar from the drop-down menu. Experiment with different pixel, font, and even color settings until you find what works for you. You may also notice that there are quite a few other toys to play with there, too...

If you don't like how much space the Windows title bar takes up, change it!

We love pinning apps to the Start menu. However, if your list gets too long, you can add separators to make your apps easier to find.

Tip Ten:
Add Separators to Your Start Menu!

If you've owned your PC for a while, chances are your Start menu is starting to look more than a bit cluttered with all the apps you've pinned. Put a little breathing space between all those apps with this handy hack.

Right-click your desktop and make a new shortcut. Select any .exe file as a target (it really doesn't matter which one you choose). Erase any text in the Name field and hold down the ALT key while entering "0160" on the number pad, which will give the shortcut an empty field for a name. Now click Okay. Right-click the new shortcut and remove the target. Next, click Change Icon and select a blank icon. Now simply drag this onto the Start button, and then drag it to the desired location.

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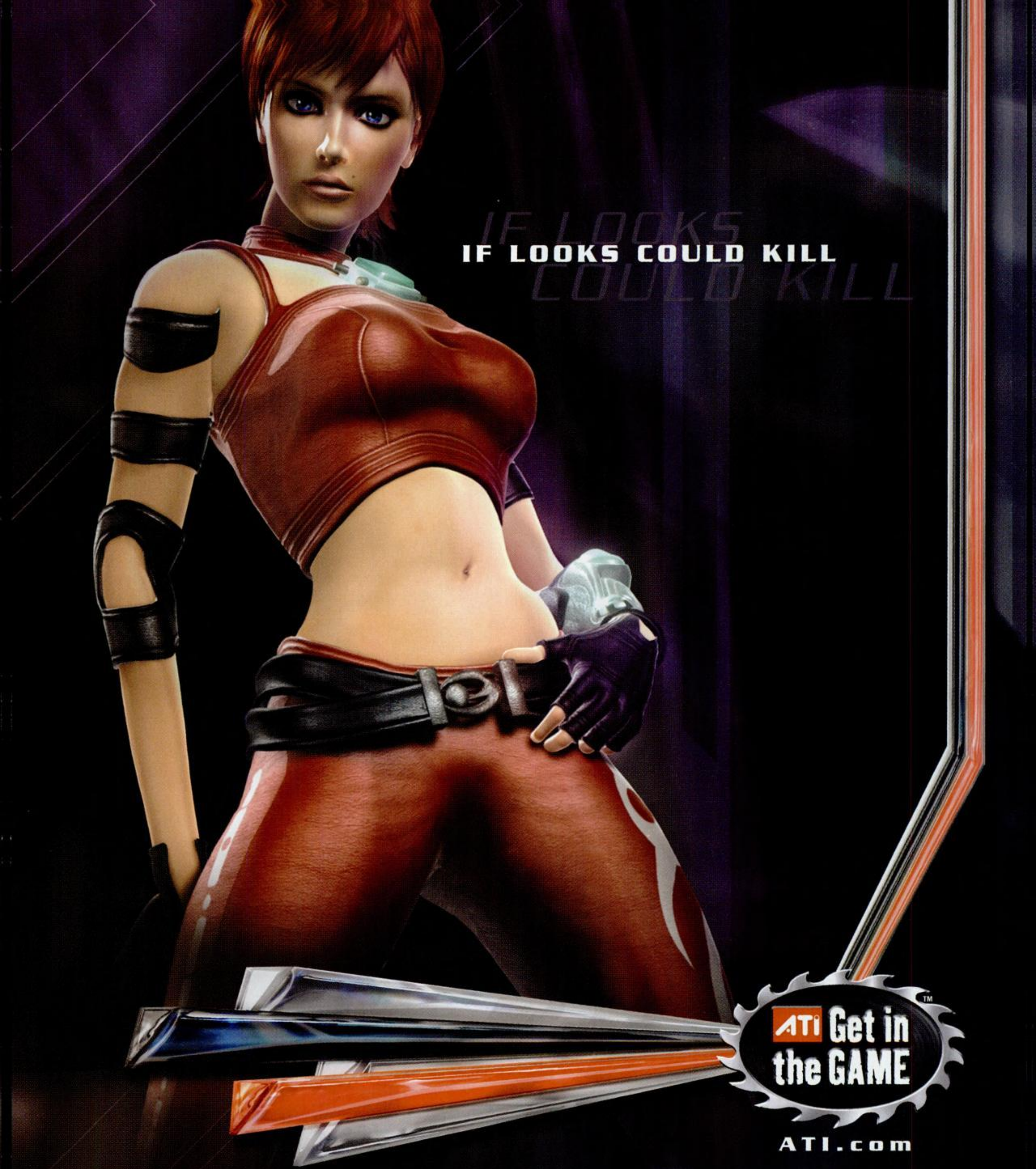

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* RADEON X800 PRO 256MB DDR compared with Nvidia's eVGA FX5950 256MB DDR, as measured by Aquamark3, Halo - Combat Evolved, Splinter Cell, Tomb Raider - Angel of Darkness, Unreal Tournament 2003 and Unreal Tournament 2004. Testing conducted March 30, 2004 on the following system: Pentium 4-3.2GHz CPU, 1GB PC3200 RAM, i875 chipset. 1600x1200 resolution.

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How To:

Set up a Dual-Monitor Display

Using just a single monitor is so 1990's. You can easily double your desktop real estate—and amaze your friends, family, and co-workers!

Think of all the multitasking you could accomplish if you weren't confined to a solitary computer screen. Well, as long as you have the physical space for two screens, a dual-display setup is within your reach.

Whether your loyalties lie with nVidia or ATI, both companies offer multi-monitor support in most of their modern videocards. And their respective setup applications are feature-rich and user friendly.

Display Hardware

In the old-school multi-display scenario, a PC had to be outfitted with a separate videocard for each screen, a configuration that has been supported since Windows 98. However, both nVidia and ATI now make multiple-display capabilities standard fare on their current lines of videocards.

While different video output configurations are available, both vendors prefer to use a common configuration that employs one traditional VGA connector and one DVI connector. CRT monitors generally use a standard VGA connection to pass an analog signal between the videocard and monitor. The DVI connector is the preferred digital input for flat-panel displays. ATI and nVidia also provide an adapter that converts the DVI connector to standard VGA, so dual CRTs can be accommodated.

nView vs. HydraVision

Both nVidia's *nView* and ATI's *HydraVision* support features such as user profiles, hotkey assignments, application position memory, and virtual desktops. But the respective products do incorporate some different feature sets that may be important to you. For example, while *nView* provides 3D acceleration for DirectX and OpenGL across both screens, *HydraVision* provides such support for only DirectX—an important difference if you play a lot of 3D games. Another neat feature included with *nView* is the ability to manipulate various multiple-monitor properties on an application-by-application basis. For example, you could have *Outlook Express* open in a different resolution than Internet Explorer. *HydraVision* does not offer this capability.

One flat-panel display is good—two are even better.

Monitor Positioning

The first thing to consider in any multiple-monitor configuration is the positioning of the monitors themselves. For example, after plugging in both monitors you might notice that the manner in which they display output is effectively reversed from what you want—the monitor on the right displays your Start menu, and the monitor on the left extends your desktop. Instead of physically repositioning the hardware, you can use the Display applet in the Control Panel to switch positions. Access the Settings tab and then drag the monitor icons to match the physical positioning of the monitors themselves.

Desktop Modes

Once you have multiple monitors configured and connected, there are a number of different ways they can be utilized. For example, *nView* enables you to configure your monitors in four modes known as Standard, Clone, Horizontal Span, and Vertical Span.

Standard mode effectively disables *nView*, limiting you to a single monitor. In Clone mode, the contents of both monitors are identical. While this may not seem practical, it's a great feature if you're giving a presentation and wish to view your desktop both on your own screen and, say, a large television simultaneously. Horizontal Span literally spans your entire desktop, including the taskbar, across two screens. So, you'll find your Start menu at the far left of one screen and your System Tray on the far right of the other. The Vertical Span mode provides a similar effect—just don't try to balance one monitor on top of the other! To get at these settings, access the Advanced section of your display settings, click the nVidia GPU tab, select Advanced Properties and then press the Desktop Manager Configuration button on the Desktop Utilities tab.

If you're looking for more desktop space, select the "Extend my Windows desktop onto this monitor" checkbox on the Settings tab of the Display applet.

Virtual Desktops

As if two desktops weren't enough, both *nView* and *HydraVision* provide support for multiple virtual desktops. This means you're able to create multiple desktop environments that you can switch between—on each monitor—to reduce clutter.

For example, you might run *Internet Explorer* on one virtual desktop and *Adobe Photoshop* on another. This is a great feature if you commonly run multiple applications simultaneously, and have trouble identifying them on a cluttered taskbar.

In *HydraVision* this capability is called MultiDesk and provides for up to nine

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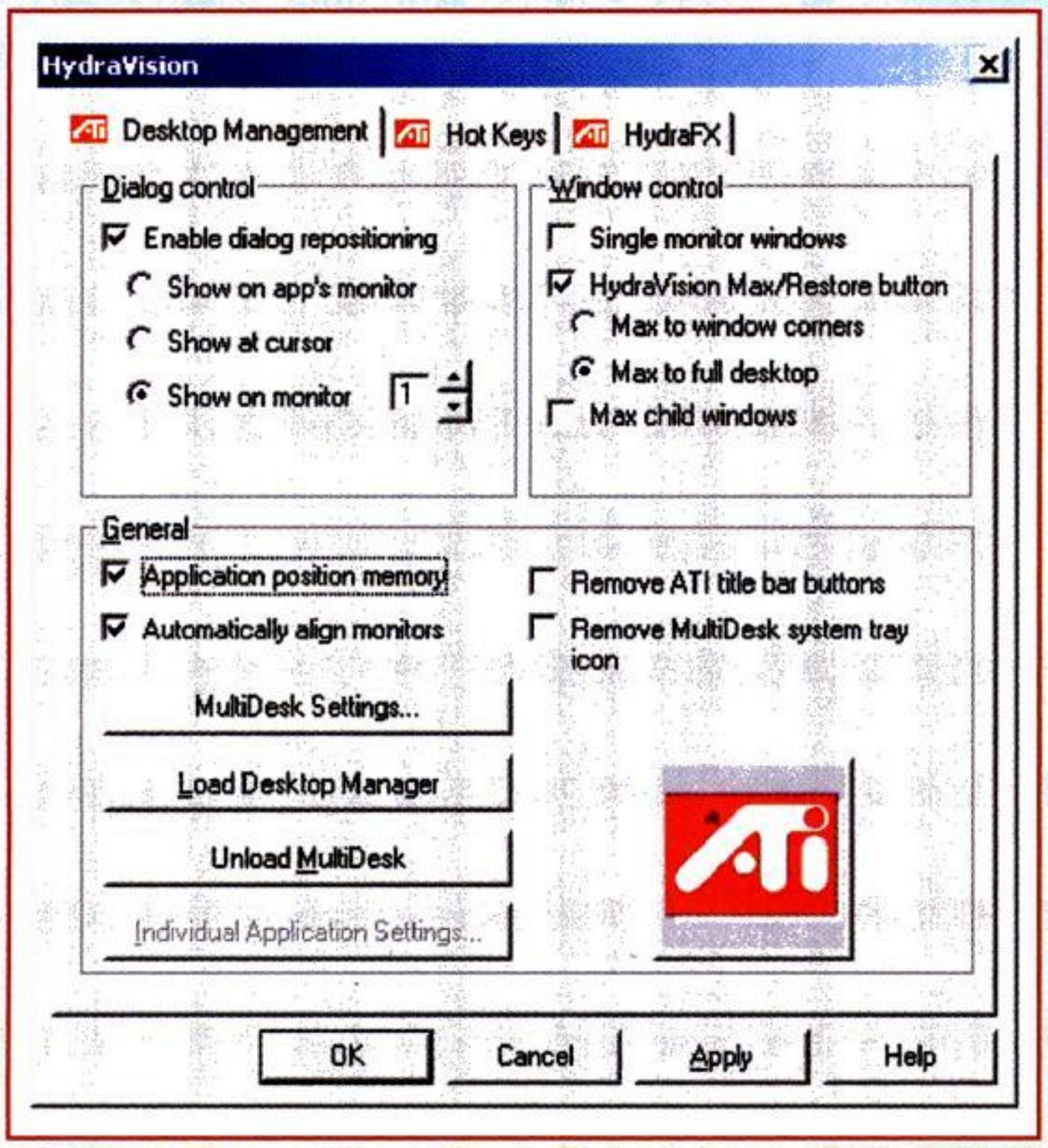

Enable "Application position memory" in ATI's HydraVision *to remember the location where a window was last used.*

individual virtual desktops. The *nView* equivalent provides access to 32 virtual desktops.

Application Position Recall

An excellent feature both *nView* and *HydraVision* offer is the ability to have your system remember where and how you want your applications to be opened. Known as "Application position memory," this feature will allow you to, say, always open *Outlook Express* to your second monitor. If you position it there (by dragging it from the first monitor) and then maximize it, the next time you open the app it will open at that same location.

In *HydraVision*, this feature is implemented by a single checkbox. Open *HydraVision* from your Start menu, and then check the "Application position memory" checkbox on the Desktop Management tab. Opening the *nView* Desktop Manager applet in Control Panel, and then checking "Enable application position memory on the Windows tab" accesses this setting in *nView*.

Application Integration

For those who do a lot of web surfing, both *nView* and *HydraVision* offer some great browser integration features. One of our favorites is the ability to open links on a new screen. Instead of just clicking a link and having it open in the same window or a different window on the same monitor, you can choose to "send" the link to a different window, or even a different virtual desktop. This is a handy feature when using search engines such as Google, as it allows you to leave your search open in one monitor while viewing the new pages on the second monitor.

Assigning User Profiles

If you have multiple people using a single PC, or have different multiple-monitor requirements based on different situations, you can easily address the issue with profiles. Think of a profile as being much like your desktop settings in Windows—every time you log on, the same settings appear.

Profiles work similarly in *nView*, except that you can have multiple profiles for a single person and easily switch amongst them. For example, you could create one profile for graphics editing, another for doing presentations, and so forth. Furthermore, you can easily assign hotkeys that would enable you to switch between them.

To create a new profile, access the *nView* Desktop Manager Profiles tab, create a new profile, load it, make your changes, and then save it. When you're done, be sure to assign hot keys to the profiles to make switching a breeze.

Special Effects

Finally, both programs also provide some advanced effects that will help make managing your desktop environment easier. The best of these is the transparency feature, which means you're able to set transparency levels to windows so you can see what's beneath them. This is a far more preferable alternative to minimizing and maximizing windows endlessly to try to find a rogue dialog box. Configure transparency settings from the Effects window in *nView* Desktop Manager, or from the HydraFX menu in *HydraVision*.

Dual Displays the Ol' Fashioned Way

Enable your PC for multiple displays using a second videocard

So you don't have an nVidia or ATI dual-display videocard? Well, the good news is that Windows XP will support the use of two graphics cards for multiple-monitor configurations. Although you'll be missing some of the features included with the *nView* and *HydraVision* software packages, you'll still enjoy the benefits of more desktop space to work with. (For a hack that'll let you configure each with different backdrops, see page 71.)

To configure your system to use two graphics cards, the cards you use must be either AGP- or PCI-based (older ISA cards are not supported), and you should install each as you normally would. Make sure that you have the correct driver installed for each device, because each is still an independent card with its own requirements. One display will be configured as the primary display and another as the secondary, but it's not possible to configure which is which. The primary display will be the one visible during the boot process, and you may be able to change the settings there if your BIOS permits it.

If your second desktop does not function correctly after rebooting, access the Display settings and ensure that the option to extend your desktop to the second desktop is checked.

Use the Settings tab to configure individual monitors in a multiple-monitor configuration with dual videocards.

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Accelerate, Streamline, and Take Control of XP

Pretty desktops are fun and all, but speed is what turns us on. At *Maximum PC*, there's no such thing as a PC that moves too fast. With this in mind, here's how to give your system a performance boost, today.

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So you've just completely pimped out your desktop, and now your PC is running slow as molasses? Hey, we told you not to go crazy. Whatever the case, if speed is what you're looking for, you found the right section of this magazine. We'll show you how to trim your desktop's bells and whistles down to the bare necessities and accelerate your interface. We'll also fill you in on a host of other power-user tips that will make WinXP run more efficiently.

Additionally, if you can not only make a cup a coffee, but sit down, drink it, *and* read the sports pages while you're waiting for your machine to boot up in the morning, we'll outline exactly how to cut your PC's "wake-up" routine down to a mere 15 seconds. Now, getting you out of bed before 11:00 am...well, that's still *your* problem.

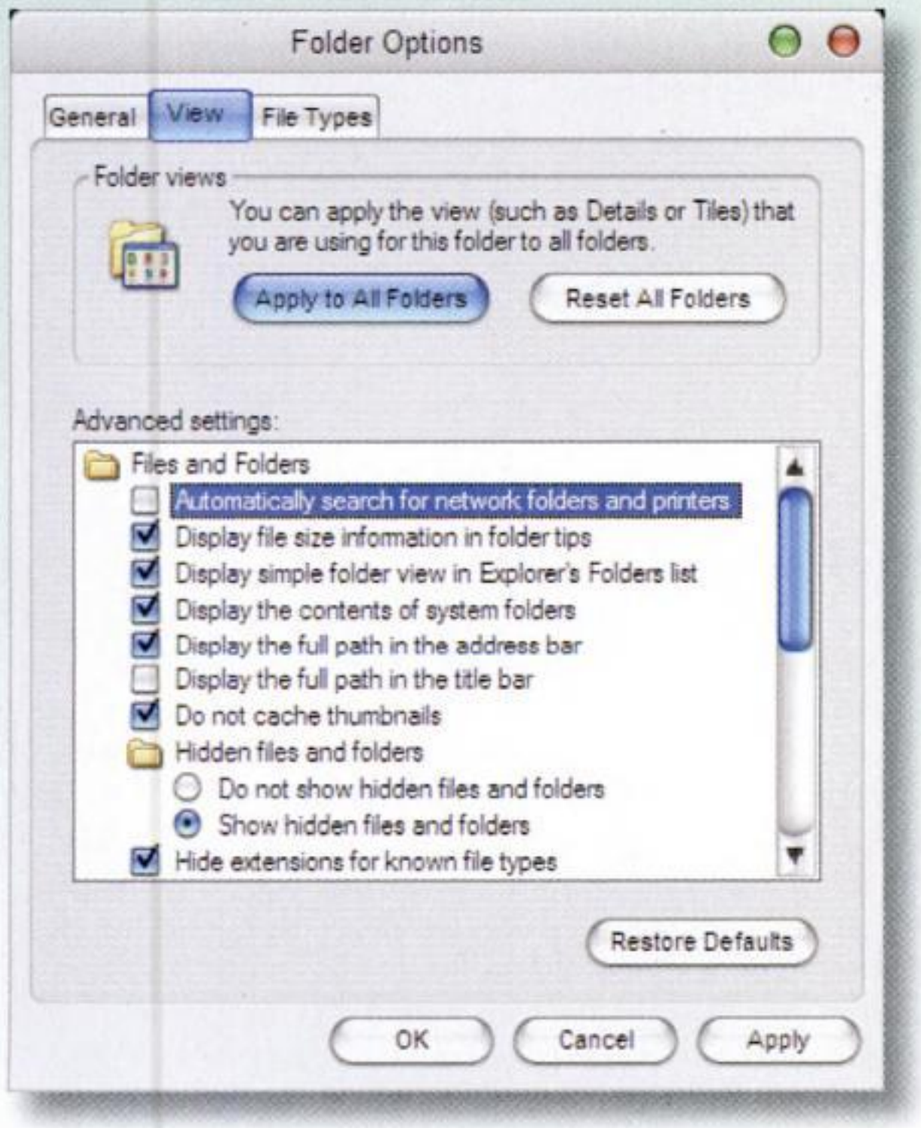
And, did you know that Windows XP comes standard with scores of background apps—all running by default—that may be sucking valuable game-crunching resources from your PC? Well, it does, and navigating though them unguided is like playing rugby in a minefield. See our extensive hard-core tips that not only expose what's going on beneath XP's surface, but also reveal how to regain control over these "services" and free your machine of those that you really don't need.

Tip One:

Speed Up Your Interface

We think WinXP's new interface is great, but we also run the latest hardware, so our machines easily fulfill the operating system's performance requirements. If the new Luna UI has got your older machine chugging along at 486 speeds, there are a few things you can do to pick up the pace.

First, go to the Display Properties Control Panel (right-click an empty spot on your Desktop and choose Properties). Now choose the Appearance tab and click the Effects button. Uncheck the following: "Use the following transition effect for menus and tooltips," "Use the following method to smooth edges of screen fonts," "Show shadows under menus," and "Show window contents while dragging." If this doesn't speed up your OS enough, you can turn off the next-gen interface altogether by selecting "Windows Classic Style" from the Windows and Buttons menu on the Appearance tab. In our Lab, this has given us 5 to 10 percent faster performance, as measured through our benchmark tests.


Folder Options
General
View
File Types
Folder views
You can apply the view (such as Details or Tiles) that you are using for this folder to all folders.
Apply to All Folders
Reset All Folders
Advanced settings:
Files and Folders
Automatically search for network folders and printers
Display file size information in folder tips
Display simple folder view in Explorer's Folders list
Display the contents of system folders
Display the full path in the address bar
Display the full path in the title bar
Do not cache thumbnails
Hidden files and folders
Do not show hidden files and folders
Show hidden files and folders
Hide extensions for known file types
Restore Defaults
OK
Cancel
Apply

Tip Two:

See Your Icons Faster

Every time you open My Computer to browse folders, XP automatically searches for network files and printers, which can be causing a delay in how quickly your icons are displayed. Here's how to see them faster:

1. Open My Computer.
2. Click on the Tools menu and select Folder Options.
3. Select the View tab.
4. Uncheck the very first box that reads "Automatically search for network folders and printers."
5. Click "Apply" or "OK."

Tip Three:

Turn Off Indexing

Windows XP keeps a record of all files on the hard disk so that it can locate a particular file more quickly when you perform a search. The downside to this is that—since the computer has to index *all* of your files—it slows down normal file commands like open, close, etc. If you don't use the search feature much, turn indexing off: Control Panel>Administrative Tools>Services>Disable Indexing Services.

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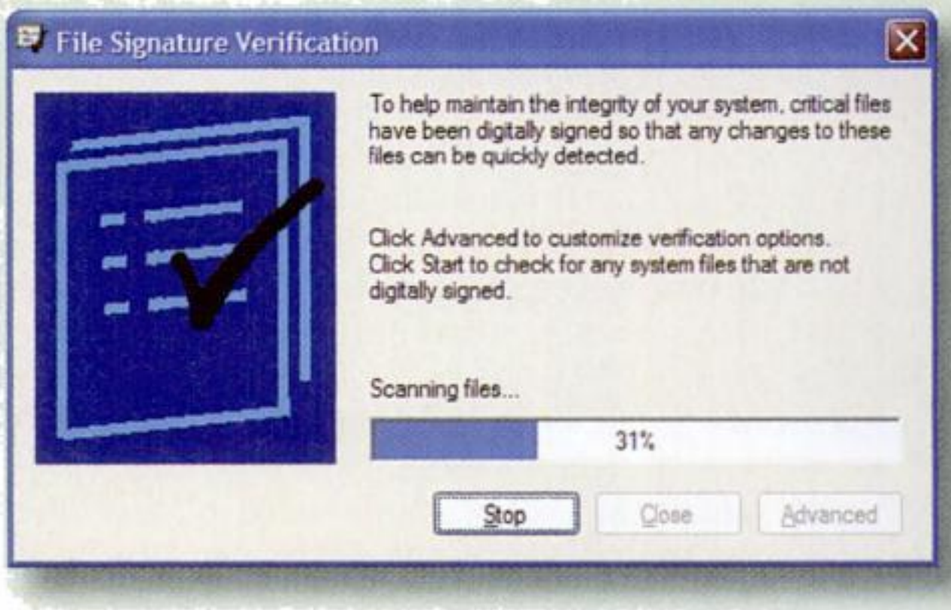
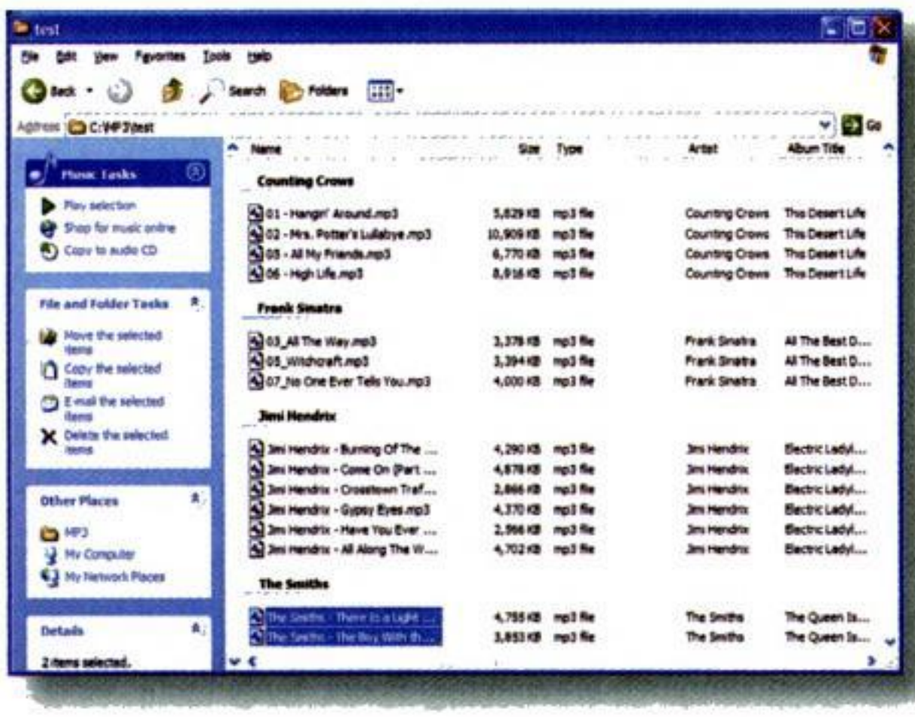
Tip Four:

Check for Signed Drivers

If it were up to the programming wizards at Microsoft, the entire world would run signed drivers. This is understandable—a significant number of crashes and system errors can be traced back to broken drivers. Signed drivers have passed through the Microsoft Hardware Qualification Labs and should be more reliable and robust than unsigned ones.

If your machine is crashing, and Windows is blaming it on a problem driver, go to the Run program under your Start menu, and run *sigverif.exe* to scan your system for unsigned drivers and other system files. Now visit your hardware manufacturers' web sites to find more up-to-date and signed versions of those drivers. Remember: Signed drivers are better, but unsigned drivers aren't necessarily bad, especially those that are updated frequently, like videocard drivers.


File Signature Verification
To help maintain the integrity of your system, critical files have been digitally signed so that any changes to these files can be quickly detected.
Click Advanced to customize verification options. Click Start to check for any system files that are not digitally signed.
Scanning files...
31%
Stop
Close
Advanced


test
File Edit View Favorites Tools Help
Back Search Folders
Address C:\MP3\test
Go
Music Tasks
Play selection
Shop for music online
Copy to audio CD
File and Folder Tasks
Move the selected items
Copy the selected items
E-mail the selected items
Delete the selected items
Other Places
MP3
My Computer
My Network Places
Details
2 items selected.
Name Size Type Artist Album Title
Counting Crows
01 - Hangin' Around.mp3 5,829 KB mp3 file Counting Crows This Desert Life
02 - Mrs. Potter's Lullabye.mp3 10,909 KB mp3 file Counting Crows This Desert Life
05 - All My Friends.mp3 6,770 KB mp3 file Counting Crows This Desert Life
06 - High Life.mp3 8,916 KB mp3 file Counting Crows This Desert Life
Frank Sinatra
03_All The Way.mp3 3,378 KB mp3 file Frank Sinatra All The Best D...
05_Witchcraft.mp3 3,394 KB mp3 file Frank Sinatra All The Best D...
07_No One Ever Tells You.mp3 4,000 KB mp3 file Frank Sinatra All The Best D...
Jimi Hendrix
Jimi Hendrix - Burning Of The ... 4,290 KB mp3 file Jimi Hendrix Electric Ladyl...
Jimi Hendrix - Come On (Part ... 4,878 KB mp3 file Jimi Hendrix Electric Ladyl...
Jimi Hendrix - Crosstown Traf... 2,866 KB mp3 file Jimi Hendrix Electric Ladyl...
Jimi Hendrix - Gypsy Eyes.mp3 4,370 KB mp3 file Jimi Hendrix Electric Ladyl...
Jimi Hendrix - Have You Ever ... 2,966 KB mp3 file Jimi Hendrix Electric Ladyl...
Jimi Hendrix - All Along The W... 4,702 KB mp3 file Jimi Hendrix Electric Ladyl...
The Smiths
The Smiths - There Is a Light ... 4,755 KB mp3 file The Smiths The Queen Is...
The Smiths - The Boy With th... 3,853 KB mp3 file The Smiths The Queen Is...

Tip Five:

Organize Your File View

If you have a big folder full of images from your digital camera or scores of unsorted MP3s, the "Show in Groups" folder option might be useful to you. It allows you to group your files in the Explorer window into similar categories instead of just listing them in the order you specify in the "Arrange by" menu. If you want to use "Show in Groups" to organize shots you took with your digital camera, choose "Arrange by Modified" to sort your snaps based on the day they were shot, then check "Show in groups" to group them by day. It's also convenient for music: Use "Arrange by Artist" with "Show in Groups" to group songs by the same artist together, or "Arrange by Album" to group songs from the same platter.

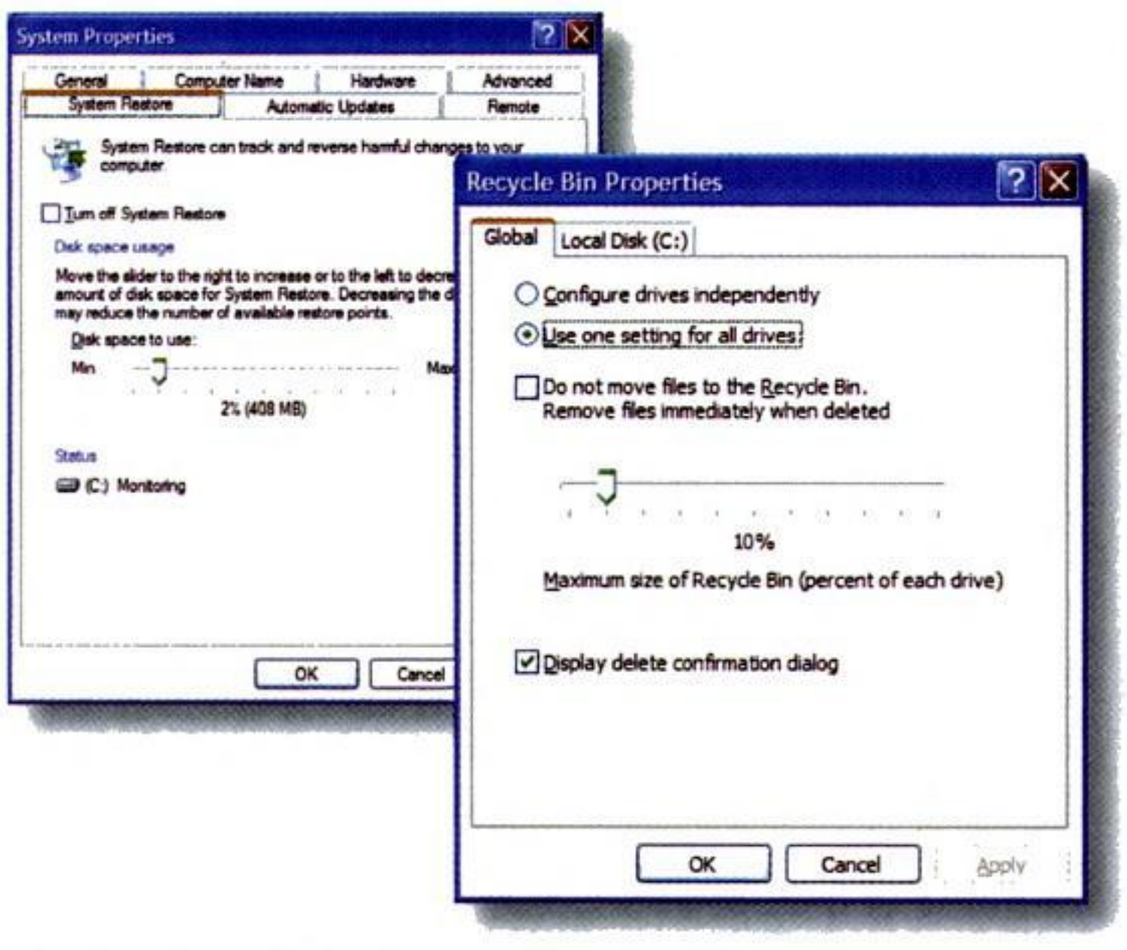
Tip Six:

Run Command Line Apps Fast, Fast, Fast

If you frequently run command-line applications, you should know about the Address bar's dirty little secret: Not only does the Taskbar's Address bar give you a quick way to launch your favorite web sites, but you also can run applications by typing the program's name into the Address bar.

Putting the Address bar onto the Taskbar is as easy as right-clicking the Taskbar, going to Toolbars, and selecting Address. You can drag the bar to an empty, convenient place on your Taskbar, where it will live forever.

Don't know what to type to open your program? It's easy to find out. Right-click on the shortcut you use to open the program, go to Properties, and look in the Target box. All you need is the app's name, which usually ends with .exe, .com, or possibly .bat.


System Properties
General Computer Name Hardware Advanced
System Restore Automatic Updates Remote
System Restore can track and reverse harmful changes to your computer.
Turn off System Restore
Disk space usage
Move the slider to the right to increase or to the left to decrease the amount of disk space for System Restore. Decreasing the disk space may reduce the number of available restore points.
Disk space to use:
Min
2% (408 MB)
Status
(C:) Monitoring
OK
Cancel
Recycle Bin Properties
Global
Local Disk (C:)
Configure drives independently
Use one setting for all drives:
Do not move files to the Recycle Bin. Remove files immediately when deleted
10%
Maximum size of Recycle Bin (percent of each drive)
Display delete confirmation dialog
OK
Cancel
Apply

Tip Seven:

Optimize System Restore and the Recycle Bin

We really dig System Restore. If you install a driver that hoses your system, System Restore will frequently let you roll your system back to a time before that evil driver arrived. However, System Restore will eat 2 percent of your disk by default. That's not a big deal if you've got a puny 80GB hard drive, but if you just shelled out for a 250GB monster, 2 percent of that drive is 5GB.

To save your drive, open up System Properties again, go to the System Restore tab, and move the slider until you're a little happier with System Restore's disk space usage.

If you thought System Restore was a disk hog, the Recycle Bin consumes even more disk space—it occupies 10 percent of your drive by default! That's a full 25GB on our new 250GB drive. To turn down the Recycle Bin's disk usage, right-click the Recycle Bin, go to Properties, and move the slider from 10 percent to something a little more compatible with today's massive disks (we wonder when we're going to see a sub-1 percent option).

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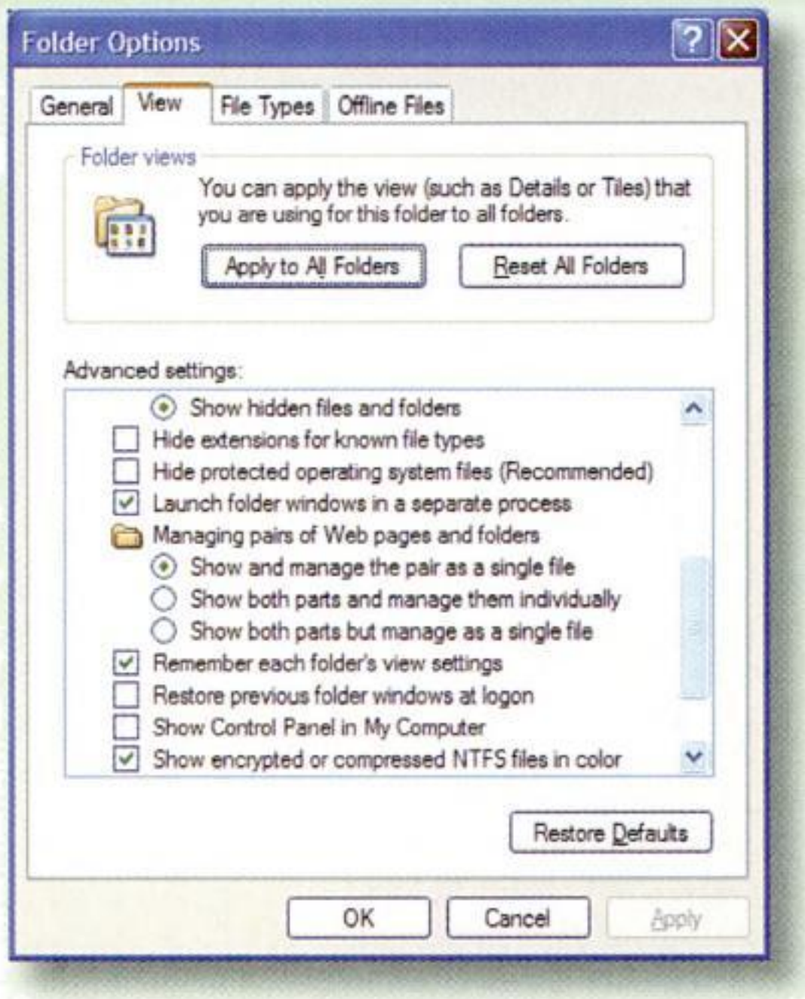
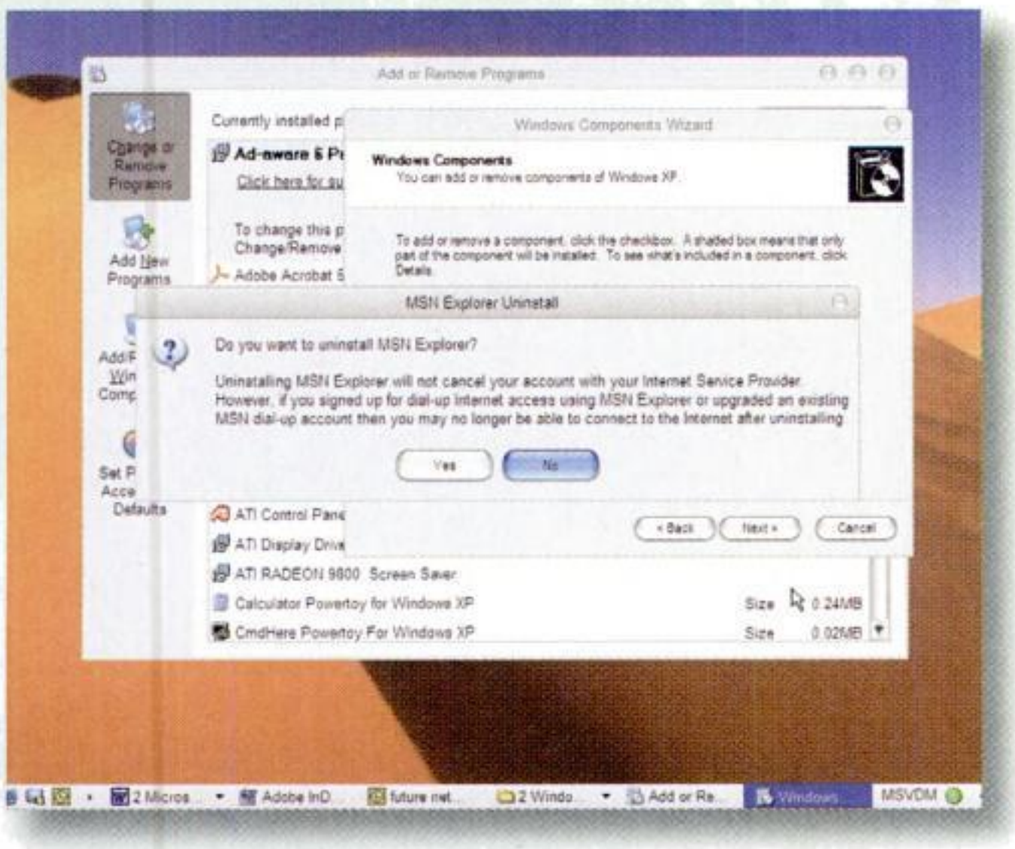

Folder Options
General
View
File Types
Offline Files
Folder views
You can apply the view (such as Details or Tiles) that you are using for this folder to all folders.
Apply to All Folders
Reset All Folders
Advanced settings:
Show hidden files and folders
Hide extensions for known file types
Hide protected operating system files (Recommended)
Launch folder windows in a separate process
Managing pairs of Web pages and folders
Show and manage the pair as a single file
Show both parts and manage them individually
Show both parts but manage as a single file
Remember each folder's view settings
Restore previous folder windows at logon
Show Control Panel in My Computer
Show encrypted or compressed NTFS files in color
Restore Defaults
OK
Cancel
Apply

Tip Eight:

Don't Let Explorer Crashes Get You Down

If you're sick of a single Windows Explorer window crashing and then bringing down the rest of your OS with it, follow this tip: Open My Computer, go to Tools, then Folder Options. Click on the View tab, then scroll down to "Launch folder windows in a separate process" and enable this option. Just be aware that you'll have to reboot your machine for this tip to take effect.

Now, if Explorer does crash on you, taking your Taskbar and Start menu with it, it's easy to get them back. Just press Control + Alt + Delete. Then select File, New Task, and type `explorer.exe` to start a fresh version of your shell.


Add or Remove Programs
Windows Components Wizard
Windows Components
You can add or remove components of Windows XP.
To add or remove a component, click the checkbox. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.
MSN Explorer Uninstall
Do you want to uninstall MSN Explorer?
Uninstalling MSN Explorer will not cancel your account with your Internet Service Provider. However, if you signed up for dial-up Internet access using MSN Explorer or upgraded an existing MSN dial-up account then you may no longer be able to connect to the Internet after uninstalling
Yes
No
Change or Remove Programs
Add New Programs
Set Program Access and Defaults
ATI Control Panel
ATI Display Driver
ATI RADEON 9600 Screen Saver
Calculator Powertoy for Windows XP
CmdHere Powertoy For Windows XP
Size 0.24MB
Size 0.02MB
< Back
Next >
Cancel

Tip Nine:

Delete MSN Explorer

If you're happy with *Internet Explorer* or another browser, and satisfied with your current e-mail and Internet service provider, you can save more than 13MB of hard drive space by deleting *MSN Explorer*. Windows Help says *MSN Explorer* is "software that makes it easy to get more from the web." That may be, but it's just a browser that integrates any Microsoft e-mail and messenger clients that require an MSN or Hotmail account. So if you're using another ISP, drop this duplicate browser like a hot potato. Open Control Panel, launch Add or Remove Programs, and on the left side of the dialog box, click Add/Remove Windows Components. Scroll through the list of Windows components and uncheck MSN Explorer. Read the warning and click Yes if you don't rely on MSN for your Internet connection. Click Next and follow the remaining on-screen prompts.

MSN Explorer is Microsoft's all-in-one Internet software solution. It includes a browser, email client, and messenger client. *MSN Explorer* requires an established MSN or Hotmail email account and an available Internet connection. The email client included with the software only supports Hotmail or MSN accounts. The software does not support external third-party email programs. As a result, you may not configure EarthLink email in the *MSN Explorer* settings.

Tip Ten:

Stop Windows from Saving the Thumbnail Cache

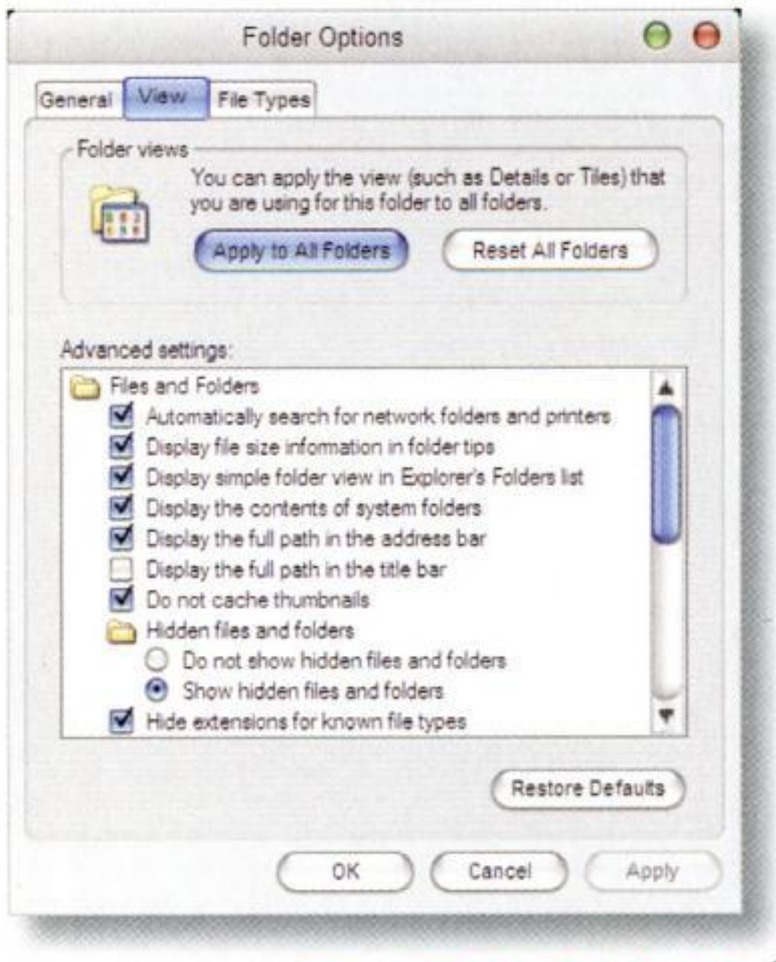
By default, Windows XP shows the thumbnail view of certain folders, whether you want it to or not. Even if you choose Details (or some other view) as your preference by going to Tools> Folder Options> View tab and click Apply to All Folders, Explorer may still revert back to the clumsy thumbnails view. It does this for any folder in which it finds the THUMBS.DB file; naturally, if you delete this file, it won't happen again.

The problem is that Windows seems to recreate the THUMBS.DB file automatically. Here's how to prevent this:

1. In Explorer, go to Tools> Folder Options or open the Folder Options icon in the Control Panel.
2. Choose the View tab, and turn off the "Do not cache thumbnails" option.
3. Click OK.

You also can change this setting in the Registry (see page 66 for Registry tips):

1. Open the Registry Editor (*Regedit.exe*).
2. Navigate to HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced.
3. Double-click the DisableThumbnailCache value, or go to Edit -> New -> DWORD value to create a new value by that name.
4. Enter 1 (that's the number "1") for its value.
5. Click OK and close the Registry Editor when you're done; you'll have to log off and then log back on for this change to take effect.


Folder Options
General
View
File Types
Folder views
You can apply the view (such as Details or Tiles) that you are using for this folder to all folders.
Apply to All Folders
Reset All Folders
Advanced settings:
Files and Folders
Automatically search for network folders and printers
Display file size information in folder tips
Display simple folder view in Explorer's Folders list
Display the contents of system folders
Display the full path in the address bar
Display the full path in the title bar
Do not cache thumbnails
Hidden files and folders
Do not show hidden files and folders
Show hidden files and folders
Hide extensions for known file types
Restore Defaults
OK
Cancel
Apply

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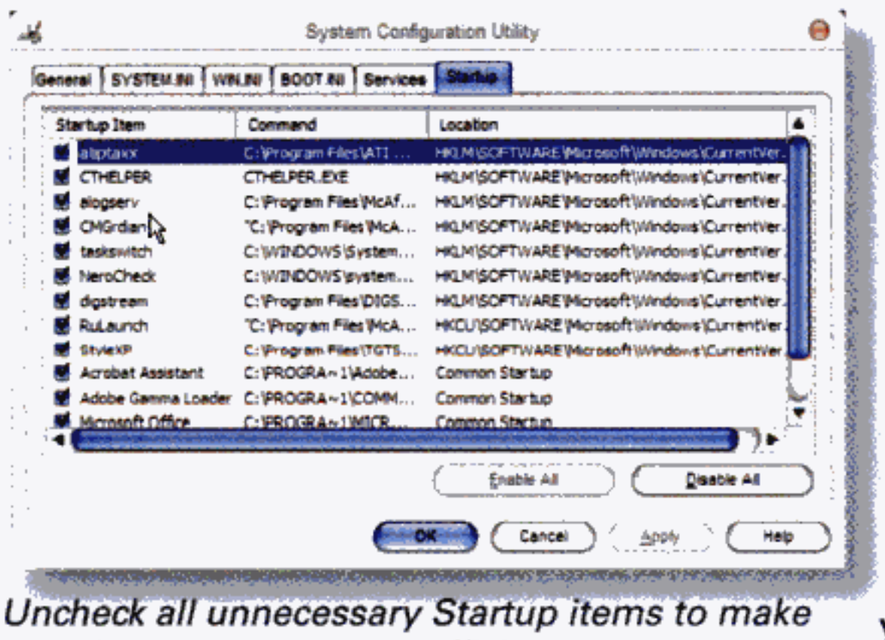
Lower Your Boot Speed to 15 Seconds

We'll start with the basic fast-boot tweaks. In the BIOS, disable "Floppy Drive Seek" and select the disk on which your OS is located as your First Boot Device. Empty your Start menu's Startup folder, and in the System Configuration Utility, clear the checkboxes of all but one or two of the most essential Startup items. Also, turn off any and all unnecessary Services (aim for a maximum of 25 Services set to Automatic and/or Manual—see page 26 for more on Windows services). Finally, defrag your hard drive; then download and run *BootVis* (which is no longer available on Microsoft's site, but can be found via a half-second Google search.)

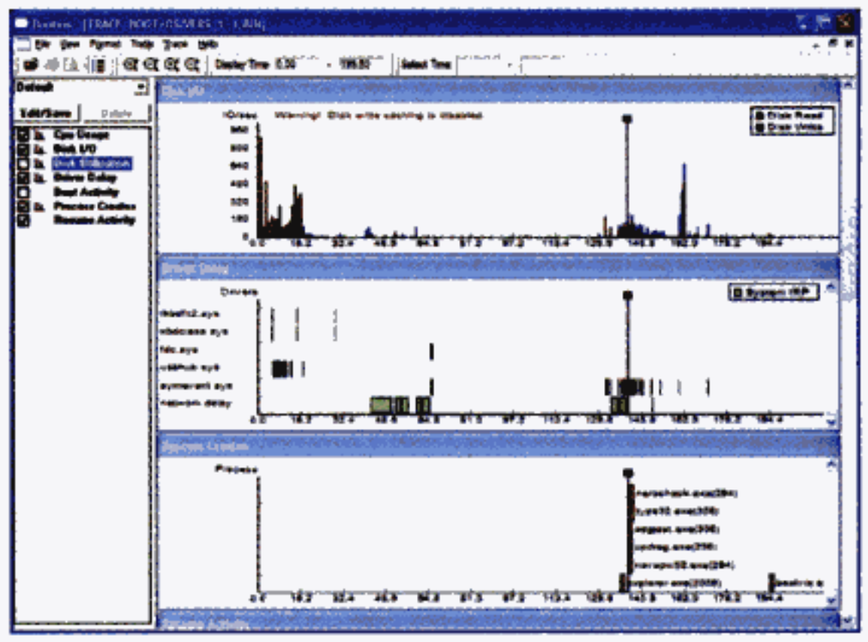
Now let's look at some of the other boot time-reducing modifications you can make.

- Our next order of business is to lose WinXP's "Luna" interface. It looks great, but it's slowing you down, pal. Click Start, right-click My Computer, and select Properties. Navigate to the Advanced tab and click the Settings button under Performance. Select "Adjust for Best Performance" and click OK.
- Give your CPU and RAM a boost by taking down your wallpaper and removing all but one or two desktop icons. While you're at it, know this: Everyone but you finds your Windows sound scheme obnoxious. Spare their ears and improve your system's boot speed by clicking Start, navigating to Control Panel, and selecting Sounds and Audio Devices. Once there, click the Sounds tab, select "No sounds" from the Sounds scheme pull-down menu, and click OK.
- Now let's get rid of your fonts. The sad truth about fonts is that the more you have, the slower your boot time. This is especially true for machines with more than 500 fonts. If your font collection exceeds the 84 that XP comes stocked with, create a folder outside of the Windows directory and move the fonts there. You can move them back to the Fonts folder when they're needed.
- Disable the Windows Startup screen to shave off an extra second or two. Press Start, then Run, then type `msconfig`, and press Enter. Navigate to the Boot.ini tab and check /NOGUIBOOT. Click Apply, then OK.
- Generally speaking, the simpler your hardware setup, the quicker your machine will boot. If you have unused hardware devices listed in your Device Manager, disable them. Press Start, then Run, then type `devmgmt.msc`, and click OK. To disable a device, click on the device in question and select Disable. (Unused peripherals integrated into your mobo should be disabled in the BIOS.)
- One of the biggest culprits of a slow boot—and OS rot in general—is a mangled videocard driver install. Prior to your next videocard driver update, download and install Driver Cleaner (www.driverheaven.net/cleaner). This utility removes all traces of previous nVidia and ATI drivers and ensures that your box is squeaky-clean for your new *Forceware* and *Catalyst* drivers.
- As part of your regular computer maintenance, periodically delete the contents of your prefetch folder to remove outdated entries. Navigate to C:\WINDOWS\Prefetch, press Ctrl + A, and then press Delete. ■



*Uncheck all unnecessary Startup items to make **your** boot process **more** efficient.*

Improve Boot Speed



Bootvis analyzes your PC's boot process and checks for slow-starting drivers, apps, and even OS components. If all you want to do is make your PC boot faster, download *Bootvis* and run the program. Then go to Trace, then Optimize. If you want to see how much faster your PC is after *Bootvis* has done its job, go to Trace, Next Boot + Driver Delays.

Bootvis will restart your system and monitor the way each driver and TSR loads, then it will optimize their positions on your hard drive. *BootVis* is no longer officially supported by Microsoft, but it can be found by searching for it on Google.

XP Acceleration Resources

One of the most useful sites on the Net for learning all sorts of ways to customize XP for improved performance is www.tweakxp.com. Not only will you find scores of useful tips to try out, but also information about one of the more popular GUI-based XP tweaking-and-optimizing programs, *TweakXP* (on the disc).

TweakXP bundles 48 different XP utilities into one handy program that lets you easily clean your registry, tweak your boot time, and back-up and restore your system—among many other useful functions.

Another popular program for tweaking XP's performance is Roemer Software's Optimum XP, which includes some 150 different XP hacks, tweaks, and tricks under one easy-to-use interface. (This is also on the disc; visit www.roemersoftware.com for more info.)

Windows Services Exposed and Expunged

WinXP enables many resource-sucking background apps by default. Here's how to separate the wheat from the chaff and make XP run more efficiently in the process.

Compared with previous versions of Windows, XP is now packed with far more features than most people will ever use. Do you want to expand your Clipboard so it can share information with other users on a local network, for example? Or index the contents of files on your PC to speed up local searching?

Probably not, but that's just tough—Windows XP comes with these extras (and many others) built in. They're called Windows "services," and they're background programs that run under XP's hood, some of which are just begging for elimination.

This sounds like a bad situation, but the reality is Windows XP gives you all the tools you need to control these services. So if you would like a faster, leaner, more secure PC, learning the basics about services is a great way to start.

Gaining Control

To find out what's happening on your PC, launch the services console (Control Panel > Administrative Tools > Services, or just select Start > Run and enter **`services.msc`**). The console displays a list of all the services registered on your PC. Unusually for Windows, most services are accompanied by a lot of detail about what they do; make sure you click the "Extended" tab to view it all.

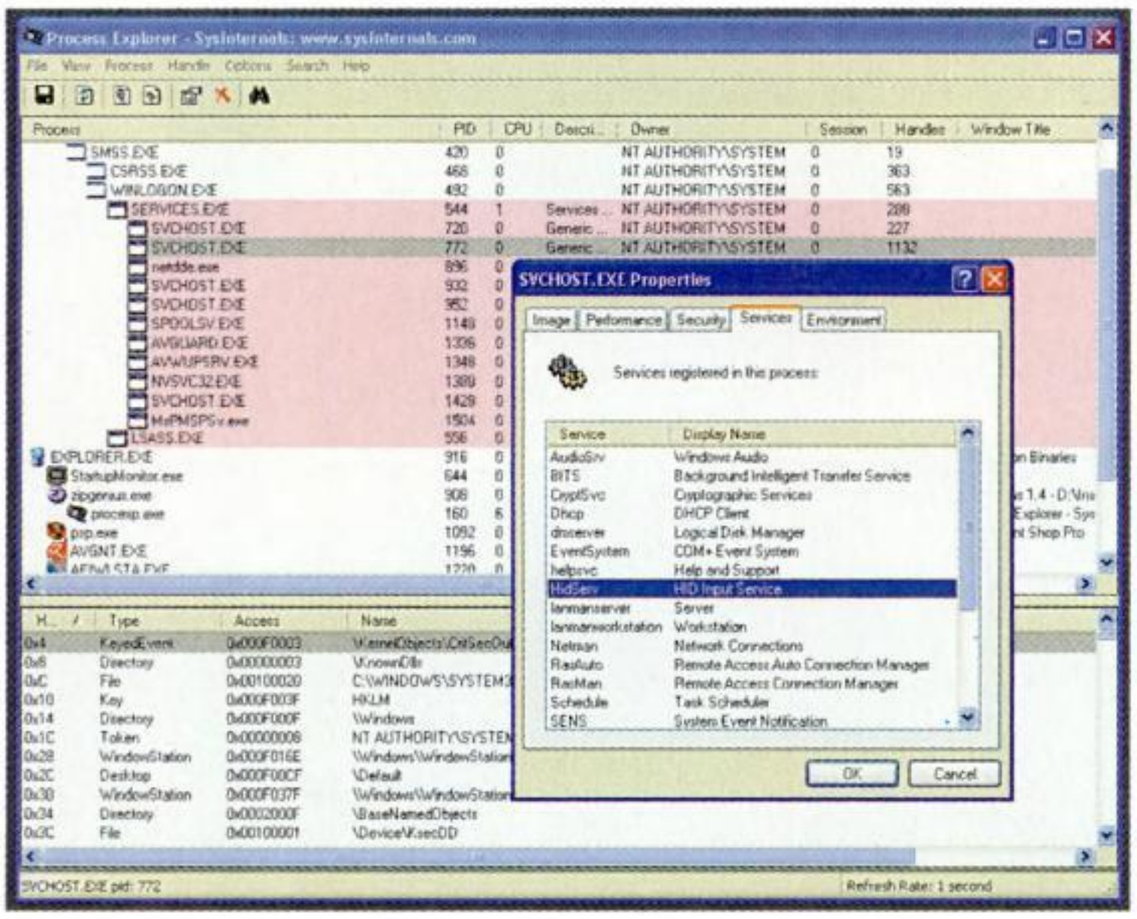
As you're scrolling down the list, pay particular attention to any services that have "Started" in the Status column. These are currently running, and consuming at least some of your PC's resources. You could find 30 or more enabled—alarming, isn't it? Particularly because many are unnecessary for the kind of things you do with your PC.

Take a look at the "Startup Type" for each service, too. "Automatic" means the service starts on its own when required (or when Windows boots), while "Manual" services must be started manually (no surprise there). As you've probably guessed, services that are "Disabled" will not start under any circumstances.

The final column, "Log on as," illustrates a new security feature in Windows XP. Services that log on as "Local System" have full user privileges on your PC, which essentially means they can do whatever they like. However, services that log on as "Local Service" or "Network Service" have only the minimum privileges they need to carry out their tasks. So, even if a hacker manages to compromise one of these, the hacker will be limited in what he can do.

Don't start changing all your services to log on as "Local Service" or "Network Service." Many need the "Local System" account privileges, and changing their status could result in some strange behavior.

You've probably already spotted some services that look entirely unnecessary. Turning them off could save a little memory, reduce the time it takes your system to boot and close down, and even make your PC more secure. But make the wrong choice, and you could introduce a variety of odd and apparently unrelated problems. So which services are safe to remove, and what's the best way to do it? That's what we're here for.



For the best overview of the services running on your PC, run the SysInternals Process Explorer *(www.sysinternals.com/ntw2k/freeware/ rocexp.shtml).*

Essential Services

Perhaps the best place to start is by detailing the services you really should keep running, regardless of how your system is configured. We think the following all qualify as essential services, so their settings should be left as "Automatic."

Antivirus Software You'll probably find that your antivirus program (perhaps your firewall, too) is running as a service. If you want to turn it off, though, it's best to do so via the "official" route (typically by right-clicking an icon in your system tray).

Cryptographic Services Even if you don't need the certificate services provided by this program, its other functions (like checking to see whether new drivers are digitally signed) are useful. We say leave it be.

Event Log This excellent feature records problems reported by other programs and services, which you can then view later (Control Panel > Administrative Tools > Event Viewer). Very useful, and we strongly recommend that you leave it running.

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Plug and Play You need this for your PC to recognize new devices as they are installed, or if you plug something into a USB or FireWire port, or even if your system has to redetect your hardware for some reason.

Remote Procedure Call Windows applications generally run in separate processes, which is a good thing (a crash in one application doesn't affect others, for example). Communication between processes can be handy, though, and that's the feature that RPC provides. Windows needs RPC to run, and disabling this feature is likely to cause very serious problems. So don't do it.

Task Scheduler You may never use this service to schedule night-time defrag operations, but it does have other handy applications, like the File Optimizations provided by the Windows XP Prefetcher (see the "Prefetch" section at **msdn.microsoft.com/msdnmag/issues/01/12/XPKernel/default.aspx**). Leave it set to "Automatic."

Windows Audio If you want to hear sound from your PC, allow the Windows Audio Service to stay running. And if you don't, just turn the volume down. This service should only be disabled if you don't have a soundcard or integrated sound on your motherboard.

Windows Management Instrumentation This service provides an interface that software can use to access and control various Windows functions (see "Programming Services"). Windows itself uses WMI, as do many other applications, so it's best to leave it set to "Automatic."

Workstation Allows access to remote files and other resources across a network, as well as provides support for some Internet services like "Background Intelligent Transfer." To be safe, whether you're networked or not, you really should leave this running.

Useful Services

One of the problems with the default Windows services settings is that they are configured in an unintelligent way. For example, services may be vital for a networked system and useless for anything else, but Windows will still launch them on a stand-alone PC. These are some of the services you may be able to do without, depending on your circumstances.

Application Layer Gateway Essential whether you're using Windows Internet Connection Sharing or the Internet Connection Firewall. Useless if you're not. (The same applies to "Internet Connection Firewall [ICF]/ Internet Connection Sharing [ICS]" and "Network Location Awareness.")

Automatic Updates If you prefer to not have Windows XP check for updates on its own, this service can safely be disabled. If you do disable it, however, don't forget to routinely check **www.windowsupdate.com** for updates.

Background Intelligent Transfer Used to download Windows updates in the background, so if you've disabled "Automatic Updates," this can be turned off as well.

COM+ Both the Event System and System Application Services help to administer Microsoft's Component Object Model system (see **www.microsoft.com/com/tech/COMPlus.asp** if you're interested). You may be running an application that needs it (even if you have a stand-alone PC), so leave it set to "Manual" if you know what's good for you.

DHCP Client Obtains an IP address from a DHCP server, either on a local network or (possibly) for your Internet connection. If you don't use DHCP, you can try disabling it, but restore it if you start having problems.

Help and Support Why is Windows Help a service? We have no idea. You can disable this if you like, but be aware that selecting Start, Help, or Support will restart it again.

HID Input Service Provides support for "hot buttons" on various input devices. Try turning this off, and restore it if you can't. For example, control Windows Media Player using the special buttons (Back, Next, Play, Stop, Volume) on your keyboard.

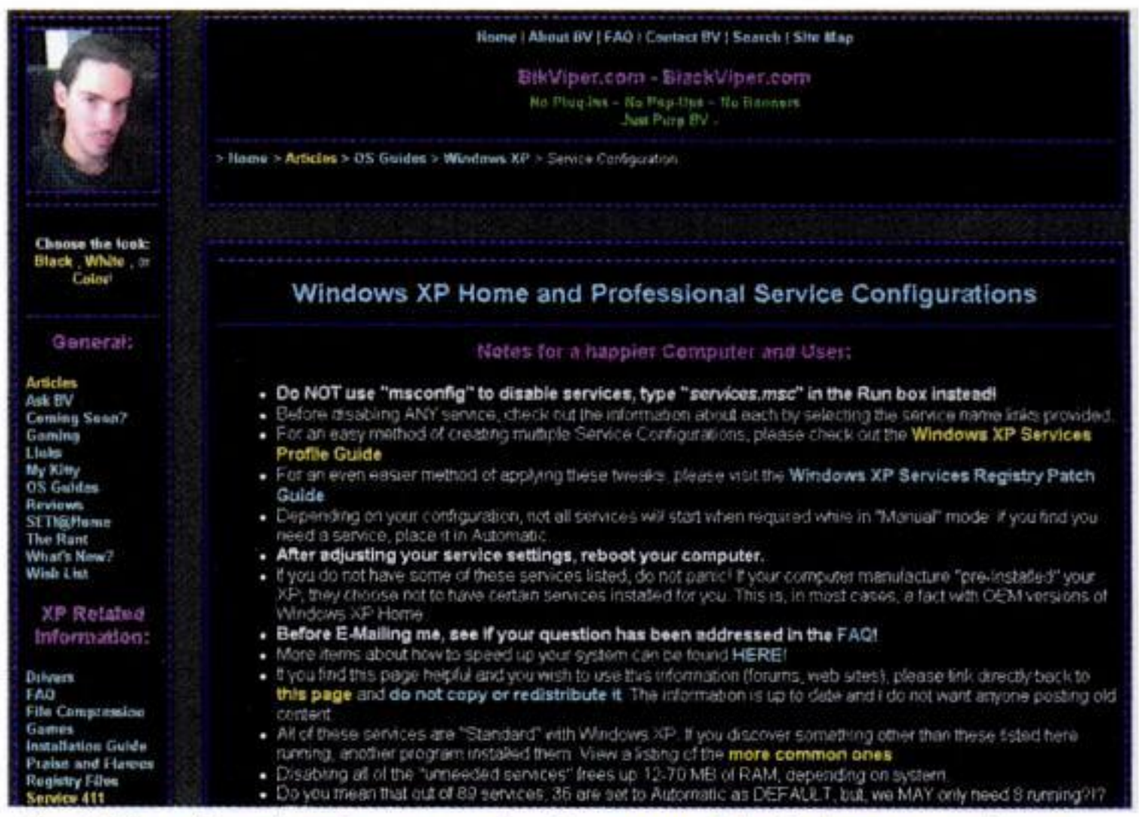
Logical Disk Manager If you want to manage your hard drives (right-click My Computer, select Manage, and then Disk Management), this needs to be running, along with the Logical Disk Manager Administrative service. As you might want to do this occasionally, we'd suggest leaving both services set at "Manual."

MS Software Shadow Copy Provider/Volume Shadow Copy Manages the copies of files (or complete volumes) provided by the Volume Shadow Copy service. Unless you use Microsoft Backup, or another imaging program that requires these services, they can both be turned off. Again, you can flip the switch back on if your backup program doesn't work correctly afterward.

System Restore It's nice to be able to "wind back" your system to undo the damage caused by installing a naughty driver, for example. Ideally, leave this service running. If you do decide to turn it off (Control Panel > System > System Restore), note that all your previous Restore Points will be lost as a result.

Telephony You definitely need this service if you use a conventional dial-up modem connection to the Internet. If you have a cable or ADSL connection, try setting this to "Manual" (it may still be required).

Webclient This allows you to browse to "Network Places" that are actually on the Internet, and lets Windows programs "create, access, and modify Internet-based files." As it reportedly can also slow down browsing on your local network, we recom-


Home | About BV | FAQ | Contact BV | Search | Site Map
BlkViper.com - BlackViper.com
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SETI@Home
The Rant
What's New?
Wish List
XP Related Information:
Drivers
FAQ
File Compression
Games
Installation Guide
Praise and Heroes
Registry Files
Service 411
Windows XP Home and Professional Service Configurations
Notes for a happier Computer and User:
Do NOT use "msconfig" to disable services, type "services.msc" in the Run box instead!
Before disabling ANY service, check out the information about each by selecting the service name links provided.
For an easy method of creating multiple Service Configurations, please check out the Windows XP Services Profile Guide
For an even easier method of applying these tweaks, please visit the Windows XP Services Registry Patch Guide
Depending on your configuration, not all services will start when required while in "Manual" mode. If you find you need a service, place it in Automatic.
After adjusting your service settings, reboot your computer.
If you do not have some of these services listed, do not panic! If your computer manufacture "pre-installed" your XP, they choose not to have certain services installed for you. This is, in most cases, a fact with OEM versions of Windows XP Home.
Before E-Mailing me, see if your question has been addressed in the FAQ!
More items about how to speed up your system can be found HERE!
If you find this page helpful and you wish to use this information (forums, web sites), please link directly back to this page and do not copy or redistribute it. The information is up to date and I do not want anyone posting old content.
All of these services are "Standard" with Windows XP. If you discover something other than these listed here running, another program installed them. View a listing of the more common ones
Disabling all of the "unneeded services" frees up 12-70 MB of RAM, depending on system.
Do you mean that out of 89 services, 36 are set to Automatic as DEFAULT, but, we MAY only need 8 running?!?

Black Viper's voluminous web site, www.blackviper.com, is an excellent resource for more thoughts on how to configure your Windows Services.

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mend disabling it, then monitoring what happens next.

Windows Image Acquisition If you don't have a scanner or webcam, then you can turn this off. And if you do, it may not require the WIA service, so turn it off anyway (or just set it to "Manual" and see what happens).

Windows Installer This tool handles any programs that install using .MSI files. You're likely to need it occasionally, though not often, so it seems a good candidate for the "Manual" setting (where the service will consume RAM only when it's required).

Wireless Zero Configuration Properties Handy if you've got any 802.11x wireless adapters installed (it helps set them up), but entirely useless if you haven't (and yet, bizarrely, it may still be running anyway.)

Nonessential Services

We've been fairly cautious so far, and with good reason—some services really are important for keeping your system running smoothly. This category is different, though, and the chance of your needing one of these services is very slim indeed.

Application Management This provides "Assign, Publish, and Remove software services," so turning it off might cause problems installing or removing some applications (particularly Microsoft's). However, as this service doesn't even exist on Windows XP Home edition, we're not sure how widespread these issues might be. Try turning it off and restoring the service to "Manual" if you have any problems.

Clipbook This feature lets you view the contents of the Clipboard, store them permanently, and share them with other users on your local network (use Start, Run, *clipbrd.exe* to see how this works). It can be disabled if you don't feel you'll use it.

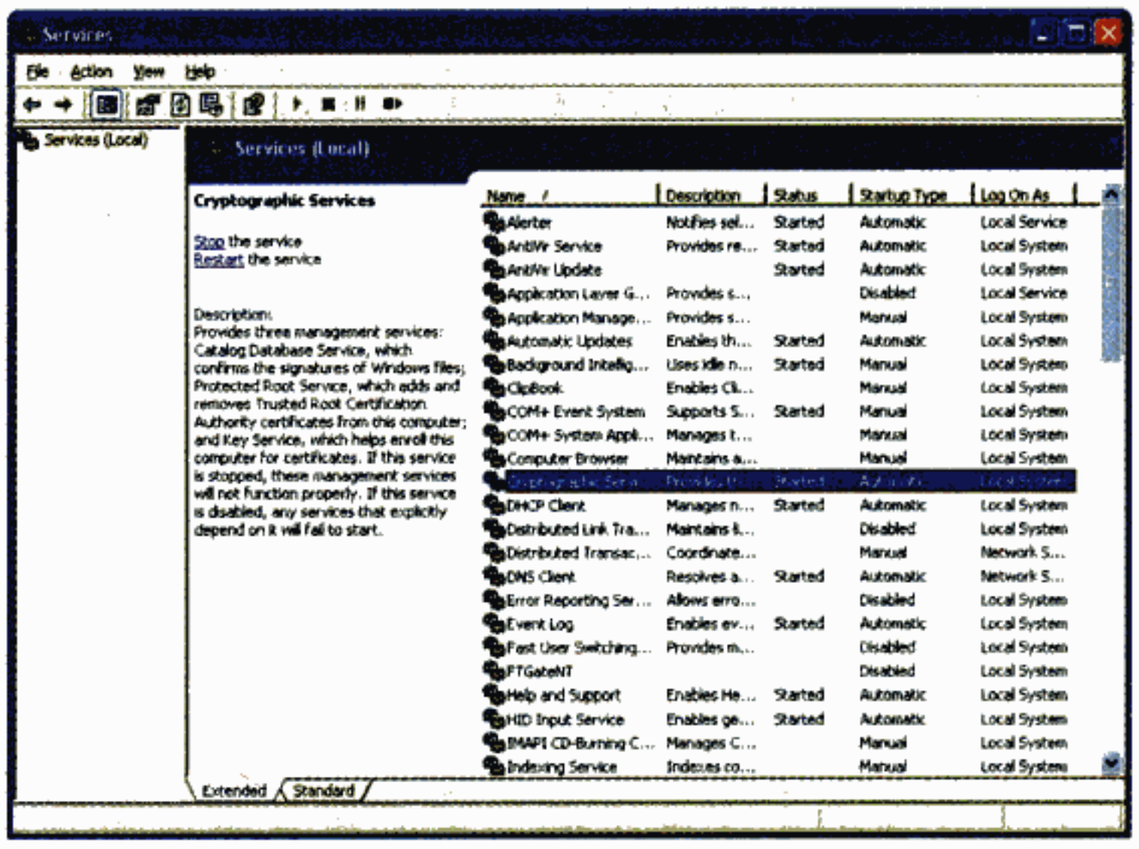
Computer Browser Keeps track of the other systems currently connected to your network, so it can be safely turned off on a stand-alone system. Even if you're on a networked system, you only need a maximum of two PCs running this service, and perhaps none at all if all the networked PCs have Windows 2000 or XP-based systems.

Distributed Link Tracking Client This service lets you create a shortcut to a file on a remote PC, then updates it automatically if the file is moved later. If you're on a stand-alone PC, or if your networked systems don't use NTFS, or if you just don't need this feature, then turn it off.

Error Reporting Ever wonder what's responsible for those dialog boxes that pop up whenever an application crashes, asking if you want to send a report back to Microsoft? Well, this service is the culprit. It's high on the "nonessential" list. Whether you want to be a part of the Windows XP and application bug hunt is up to you.

Indexing A good idea in theory, this service creates a document index to speed up searches in Windows and *Office XP* (among other apps). However, in reality, it consumes more resources than it's worth, and you're better off disabling it. (Restore it later if searches start to seem too slow.)

IPSEC If you're a telecommuter and need to connect to a remote network via a VPN, then Internet Protocol Security (IPSEC) may be useful. Otherwise, it almost certainly is not. Turn it off and reclaim the resources.


Services
File Action View Help
Services (Local)
Services (Local)
Cryptographic Services
Stop the service
Restart the service
Description:
Provides three management services: Catalog Database Service, which confirms the signatures of Windows files; Protected Root Service, which adds and removes Trusted Root Certification Authority certificates from this computer; and Key Service, which helps enroll this computer for certificates. If this service is stopped, these management services will not function properly. If this service is disabled, any services that explicitly depend on it will fail to start.
Name / Description Status Startup Type Log On As
Alerter Notifies sel... Started Automatic Local Service
AntiVir Service Provides re... Started Automatic Local System
AntiVir Update Started Automatic Local System
Application Layer G... Provides s... Disabled Local Service
Application Manage... Provides s... Manual Local System
Automatic Updates Enables th... Started Automatic Local System
Background Intellig... Uses idle n... Started Manual Local System
ClipBook Enables Cli... Manual Local System
COM+ Event System Supports S... Started Manual Local System
COM+ System Appl... Manages t... Manual Local System
Computer Browser Maintains a... Manual Local System
DHCP Client Manages n... Started Automatic Local System
Distributed Link Tra... Maintains li... Disabled Local System
Distributed Transac... Coordinate... Manual Network S...
DNS Client Resolves a... Started Automatic Network S...
Error Reporting Ser... Allows erro... Disabled Local System
Event Log Enables ev... Started Automatic Local System
Fast User Switching... Provides m... Disabled Local System
FTGateNT Disabled Local System
Help and Support Enables He... Started Automatic Local System
HID Input Service Enables ge... Started Automatic Local System
IMAPI CD-Burning C... Manages C... Manual Local System
Indexing Service Indexes co... Manual Local System
Extended Standard

Unusually for Windows, most services provide a lengthy description of what they do. (Make sure you click the "Extended" tab to see it.)

Messenger No, not *Windows* or *MSN Messenger*. This is a service that sends messages between clients and servers across your network. It's obviously a superfluous feature for stand-alone systems, but home networks probably won't need it either. Turn the service off and see what happens.

Remote Registry Service Do you want remote users to be able to modify Registry settings on your PC? It's not as insecure as it sounds, but we'd still disable this feature, unless you have a good reason to do otherwise.

SSDP Discovery A component of "Universal Plug and Play." Whether you disable that or leave it running, you need to do the same with SSDP Discovery.

TCP/IP NetBIOS Helper Generally required only if your local network uses NetBIOS over TCP/IP. Turn it off, restoring the service if you have any subsequent network (or possibly Internet) problems.

Telnet Allows remote users to log on to your PC and run programs. Turn it off, unless you really need this service for some reason.

Uninterruptible Power Supply It's safe to disable this, unless of course you really do have a UPS.

Back Up Your Config!

If things go wrong, this is your "Plan B"

Does tweaking your services make you a little nervous? Are you concerned about how you can restore your current settings if something goes wrong? You should be. One answer is to back up the Services Settings held in the Registry; run REGEDIT, navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services, and use File > Export to save that data. Double-clicking the file it produces will restore your settings.

This is a good bit of insurance, but don't be complacent. Turn off a critical service like Remote Procedure Call and your PC may not even boot, making it impossible to use the backup file.

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Universal Plug and Play Discovers devices attached to remote PCs on your network. May also be necessary if you use Internet Connection Sharing and allow others to modify the connection properties. Its security issues have now been resolved (**www.microsoft.com/technet/security/bulletin/MS01-059.asp**), but unless you need this service, it's still wise to turn it off.

Windows Time Synchronizing your clock via an Internet time server is a good idea, especially if you have an "always on" Internet connection. But doing so via a Windows service that's running all the time is not the most efficient route.

WMI Performance Adapter Windows Management Instrumentation (WMI) is an essential service, but it can be slow. High performance (HiPerf) providers can speed things up massively, and the WMI Performance Adapter can be used to provide information on this. But unless you're a developer, this is of little utility, and can be disabled.

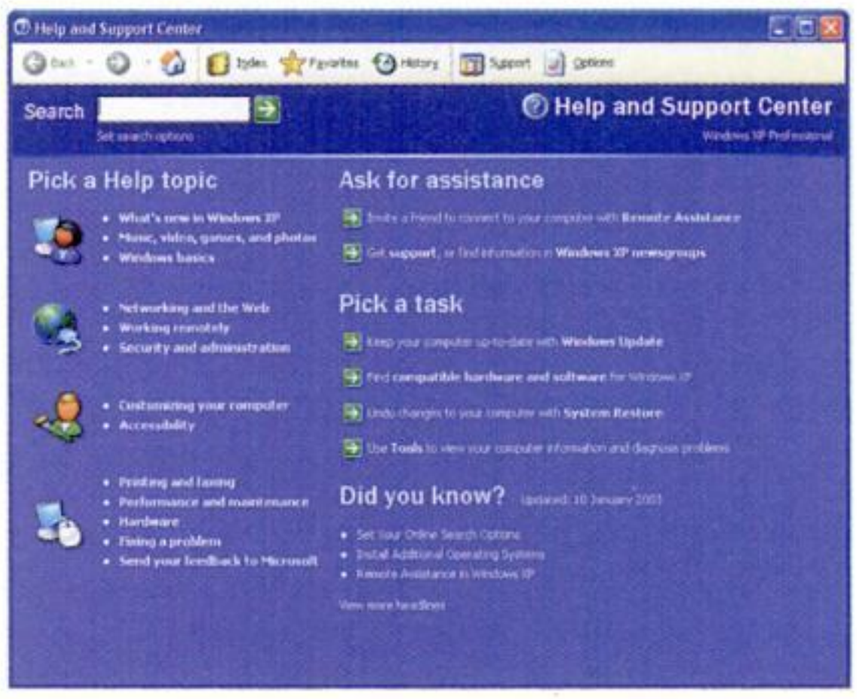
Proceed with Care

Compare our lists with the services running on your system, and you'll quickly pick out the ones that seem to be unnecessary. So what should you do next?

To avoid any potential problems, it's best to proceed with caution. Open the Services console (Start > Run > **services.msc**) and double-click one of the services you suspect is unnecessary. When the Properties dialog appears, select the "General" tab, change its "Startup Type" to "Manual," and click OK. (Change only one service at a time to avoid confusion.)

Once a service has been set to "Manual," it should only be launched if required by an application or another service. The good news is that this means you'll recover a little RAM for your other applications. The bad news? If the service really is required, there may be a noticeable delay at some point while it's launched.

Services like "Help and Support" can be re-enabled unexpectedly, so keep an eye on your Service Settings to make sure they don't change.



To test this, reboot your PC and check the Services console again. If it's now showing as "Started," then this means another service or application requires it to function. Otherwise, try carrying out functions that relate to what the service is supposed to do (connect to the Internet, browse a networked PC, whatever it might be), then check the service status again. If your PC still works fine, and if the service is not shown as "Started," then it probably isn't required.

Don't let the potential risks put you off. Managing services isn't difficult, and is a great way to give your system a performance boost. ■

Make a Habit of it

As you'll see from this story, once you've learned the basics, it really isn't difficult to optimize your Windows services. That's good, because the bad news is that doing this once isn't enough. Install a Windows Update, for example, and you may find the process has restarted some services. The same thing might happen if you install a Microsoft application, and some services ("Help and Support") automatically re-enable themselves if someone tries to use them. So make a habit of reviewing your services on a regular basis, and you'll keep control of your PC.

Building Service Profiles

Quickly and easily turn whole groups of services on or off to suit your needs

MS-DOS Prompt
C:\WINDOWS>net help services
The syntax of this command is:
SERVICES
NET START can be used to start services, including
NET START ALERTER
NET START BROWSER
NET START CLIENT SERVICE FOR NETWARE
NET START CLIPBOOK
NET START DHCP CLIENT
NET START EVENTLOG
NET START FILE REPLICATION
NET START MESSENGER
NET START NET LOGON
NET START NT LM SECURITY SUPPORT PROVIDER
NET START PLUG AND PLAY
NET START REMOTE ACCESS CONNECTION MANAGER
NET START ROUTING AND REMOTE ACCESS
NET START RPCLOCATOR
NET START RPCSS
NET START SCHEDULE
NET START SERVER
NET START SPOOLER
NET START TCP/IP NETBIOS HELPER SERVICE
NET START UPS
NET START WORKSTATION
When typed at the command prompt, service names of
be enclosed in quotation marks. For example, NET S
starts the net logon service.
C:\WINDOWS>_

The humble batch file is one of the best ways to speedily reconfigure your services.

You're about to play a resource-hogging game on your PC, and all the network-related services have been left running. So wouldn't it be better if you could turn them all off, play the game, then restore normal service when you're done?

To see one way of achieving this, open a DOS window, and enter **NET HELP SERVICES | MORE**. As you'll see, the NET command can be used to start (and stop) a variety of services.

Now open up Notepad and create a file called **STOPSERV.BAT** that contains the lines **NET STOP CLIPBOOK** and **NET STOP MESSENGER**. Then create a second file called **STARTSERV.BAT**, containing the lines **NET START CLIPBOOK** and **NET START MESSENGER**. Place the files on your desktop and you'll now be able to stop and start these with a double-click.

This works well, as long as you remember that some services rely on others. The Messenger Service depends on Workstation; when you're creating the restart batch file, this means that a NET START WORKSTATION command must appear before NET START MESSENGER will work. Double-click on a service in the Services console, then select Dependencies for more information.

An alternative is to build one or more custom hardware profiles. To get started in Windows XP, select Control Panel > System > Hardware > Hardware Profiles, choose your current profile, click "Copy" and give it a name along the lines of "Minimum Services."

Next, choose Start > Run, and enter **services.msc** to start the console. Select a service that's running, but that you don't need. Double-click it, select the Log On tab, and ensure that it's disabled for the "Minimum Services" profile. Repeat this for every service you can do without.

Now, when you want to give a game or application everything you've got, just reboot your PC and choose your "Minimum Services" profile from the boot menu, And best of all, if something goes wrong, it's very easy to recover—just reboot again, and choose the regular hardware profile.

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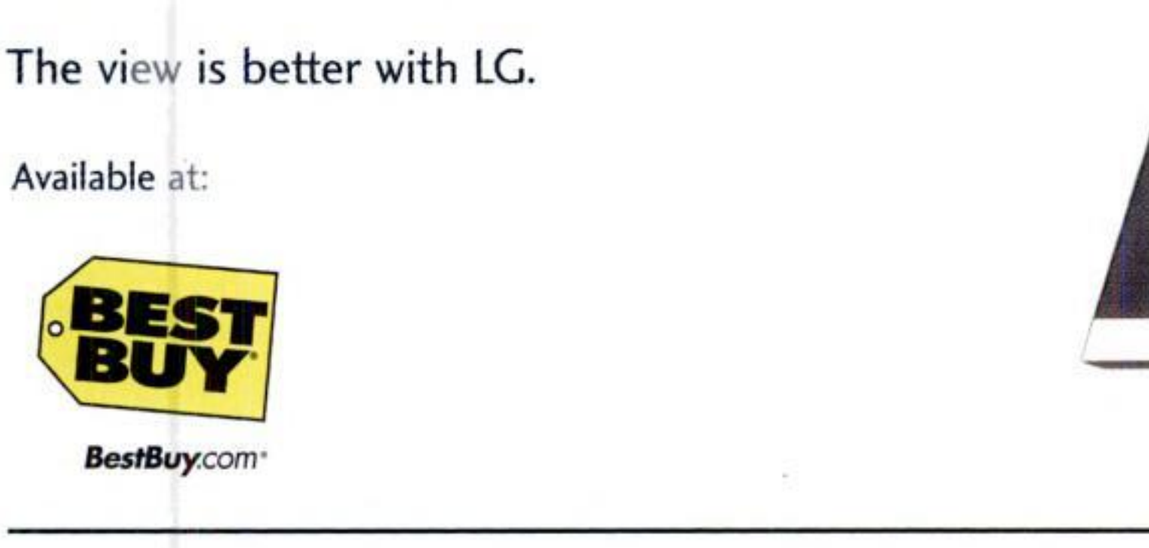

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Life's Good

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3 Step Three

Maintain a Healthy OS!

Windows XP can be a sickly OS, vulnerable to diseases like bloat, adware, viruses, and excessive clutter. Keep XP shiny and clean with these fail-safe, time-tested Maximum PC routines

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Nothing beats a rollicking, speedy operating system that busts your programs open in seconds and blazes through games at dizzying frame rates. Windows XP is Microsoft's most stable and versatile operating system to date—but keeping it that way takes some time and effort on your part. Like an unkempt refrigerator, your OS can end up in a sorry state if you wait too long to clean it up!

For instance, as you add applications to your computer, they write entries in the Registry. As the Registry grows, Windows has more "stuff" to sort through when you want it do something. Net result: Windows gradually slows down over time.

Other factors contribute to Windows' gradual loss of performance. More files on the hard drive means more "junk" Windows has to muddle through to find what it's looking for. Without your due diligence, files can and will fragment, which means Windows may have to look in three different places on the hard disk platters to piece together a single file. This, of course, tosses efficiency out the window, and you suffer the associated performance penalties.

Like a newborn child, Windows XP has a weak immune system. Viruses, worms, spyware, adware, and other nasties can burrow their way into your computer's hard drive if you're not paying attention, resulting in all manner of anomalies. Disk problems can creep up any time, too. At best they're merely a nuisance. At worst, they're a destructive maelstrom that can corrupt files, resulting in total data loss, which is always only a stuck bit away—and usually occurs at the most inconvenient time.

Do we have your attention yet? Good. All's not lost. If you dutifully follow these preventative steps, your OS will thank you for it profusely, with years of trouble-free operation and top performance. As with your fridge or car regular maintenance of your OS is the key to keeping it clean. Institute these daily, weekly, and monthly tasks—as well as one Herculean yearly practice—into your PC regimen, *today*. Trust us, it's worth the effort!

Daily

Back-up Your files.

Transferring copies of your data to secure removable media, such as CDs or DVDs, is paramount. Your files are vulnerable to data corruption, hard drive seizures, malicious viruses, and all sorts of evil. Back up your files *every time you change them*. That means, if you brush up the resume in order to escape your soul-sucking job, back it up. If you finally get past all the damn snipers in the Stalingrad map of *Call of Duty,* back-up your game saves. If you get around to balancing your checkbook in *Quicken,* back up your files—heck, *Quicken* even includes its own, built-in backup system!

At the very least, use *Windows Backup*, which you have to install manually off of your XP CD (your CD drive:\valueadd\msft\ntbackup). *Windows Backup* is easy to use; it contains backup and restore wizards to make the process painless, and it works with Windows' scheduling agent to automate backups to run whenever you'd like. Or pick up a more robust third-party app, such as *BackUpMyPC* (see the sidebar on page 34), which contains support for a wider range of removable media hardware, including CD/DVD-R drives.

The freeware AntiVir *virus scanner, like all antivirus programs, includes an Internet updater to keep it up to date on the latest viruses.*

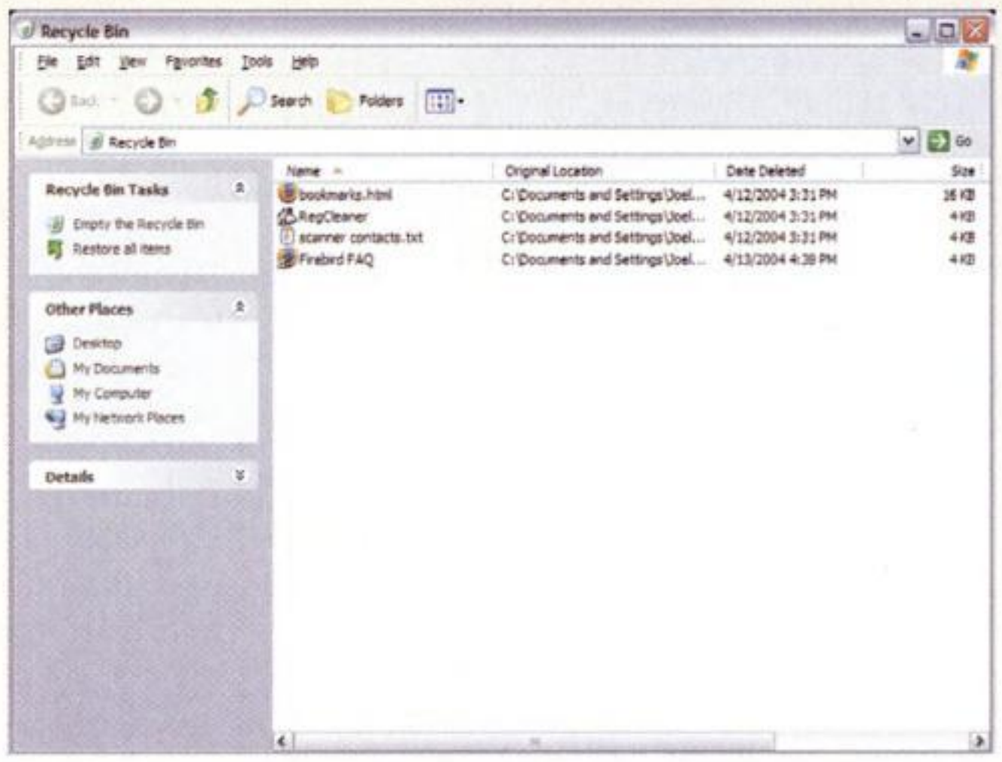
Update Your Antivirus Program

You *are* using an antivirus program, right? If not, for shame. Go out and get yourself *Norton AntiVirus* or *McAfee VirusScan,* which are the two dominant antivirus programs available. Or, if you'd rather not shell out for these, head over to www.free-av.com and download *AntiVir*. It's free, it's effective, it's small, and it works. It lacks some of the bells and whistles that the commercial packages have, such as an e-mail scanner and heuristic detection, but its background agent catches viruses on the fly, making it nearly as effective as any antivirus program.

Most antivirus programs look for viruses, worms, trojans, and more. When a new virus hits the Net, antivirus developers scramble to update their wares to recognize and eliminate it. Take advantage of their vigilance and update your antivirus program daily. Some antivirus software lets you schedule automated updates. Do it.

Empty the Recycle Bin

Power users delete folders, files, shortcuts, and other stuff on a regular basis. Don't leave that junk to collect dust—and take up valuable disk space—by allowing it to languish in the Recycle Bin. Tank it. Check out Rich Levin's *T-Man* (short for Trash Man, and it's available on the disc in the utilities section). It's an itty-bitty program that can automatically flush the Recycle Bin when Windows shuts down. You can even elect to not have deleted items moved to the Recycle Bin, and instead have them deleted immediately. Click the Recycle Bin, right-click and select Properties, and check the box. Now just be careful when you hit that scary deletion-confirmation button!



So obvious you can miss it: Hose out your Recycle Bin *on a daily basis to free up disk space.*

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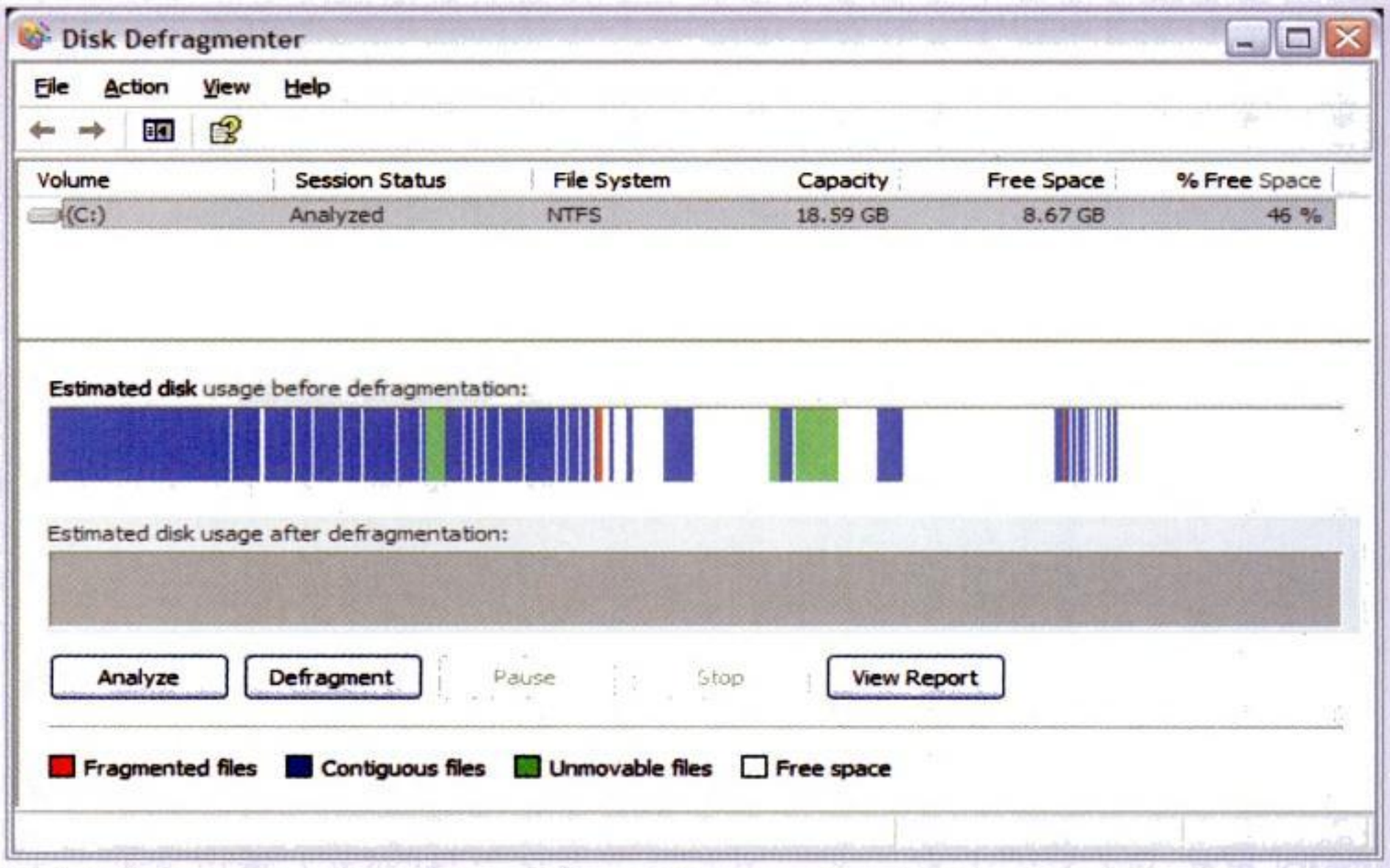
Hospital Zone

Weekly

Defrag, Defrag...

Fragmented files can invoke a general PC malaise, which manifests itself as slowness, drive thrashing, poor posture, and halitosis. OK, maybe not those last two, but don't wait until your data is fragmented enough to notice a decline in performance; run Disk Defragmenter once a week. Fire it up through the Start menu/All Programs/Accessories/System Tools. It lets you analyze each partition of your hard drive, and it spits out a recommendation to either defrag the drive or leave it alone.


Disk Defragmenter
File Action View Help
Volume Session Status File System Capacity Free Space % Free Space
(C:) Analyzed NTFS 18.59 GB 8.67 GB 46 %
Estimated disk usage before defragmentation:
Estimated disk usage after defragmentation:
Analyze Defragment Pause Stop View Report
Fragmented files Contiguous files Unmovable files Free space

Disk Defragmenter *presents one of the easiest means to keep your PC running* ***smoothly.*** *Fragmented files hurt performance, so defrag your hard drive often.*

Update Windows

If you've disabled Windows' automatic update applet, it is imperative that you manually run Windows Update each week. Security "holes"—XP was perforated with 'em at launch—are exponentially more dangerous to your system than viruses are, and hackers find new ways to crack into Windows regularly. Microsoft continuously publishes patches for these security holes, so keep a look out for them. Launch Windows Update by clicking on its icon in Start/All Programs. *Internet Explorer* will launch and take you to the Windows Update web site, where you should elect to scan your copy of Windows XP for all available updates. After Update scans, it'll cough up a list of critical updates, optional updates, and driver updates. Be sure to install any critical updates; whether to install the others is your choice. Driver updates are almost always a good idea; read the descriptions of the other options carefully determine if you need them for your PC usage—the motto "don't fix it if it's not broke" exists for a reason.

Update Your Device Drivers

This can be a pain in the rear, but it's worth the bother. Manufacturers of motherboards, graphics cards, soundcards, modems, and other hardware tend to update their drivers on a regular basis. You should head to their web sites once a week and check for updates. Optimized drivers can boost the performance of your hardware—this is especially true of graphics cards. Drivers are the key to compatibility and performance and you should stay on top of them regularly. If the manufacturer of your hardware offers automatic e-mail updates informing you of new driver releases, sign up! Windows Update will also inform you of new drivers, particularly for your graphics card.

Get Rid of Adware and Spyware

Adware and spyware not only snoop on how you use your system, but they also can impede performance. Run a free program called *Ad-Aware*, which is on the disc (see page 52 for more).

Run Disk Cleanup

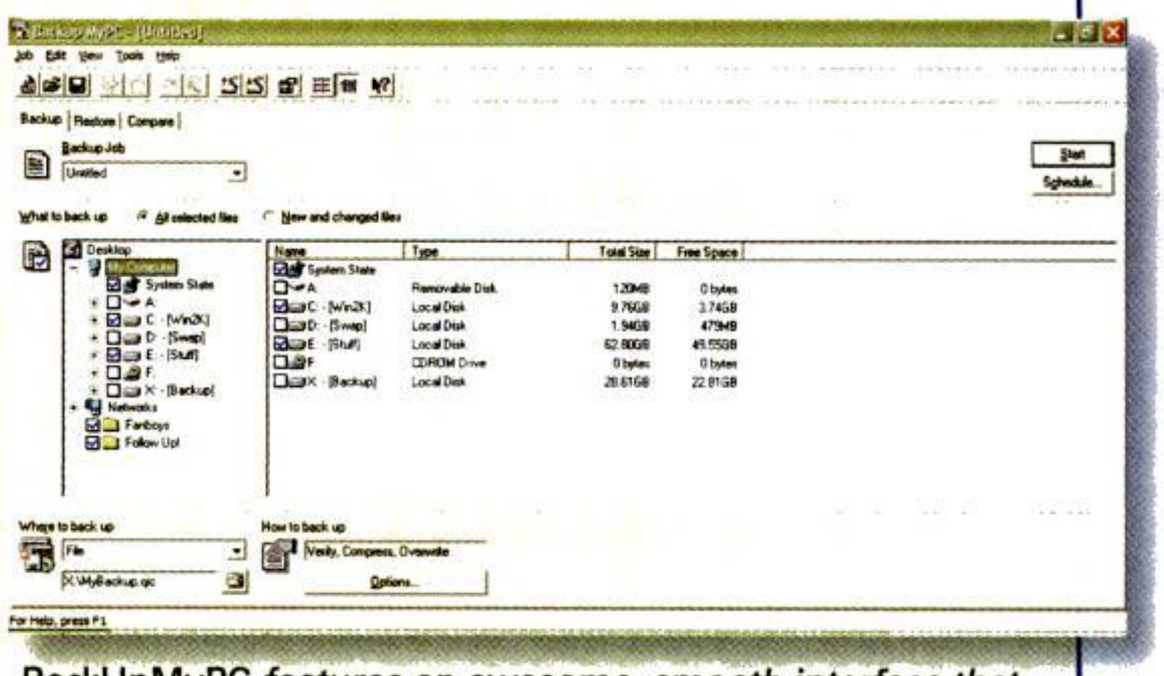
Microsoft included a handy little applet called Disk Cleanup, which you launch through the Start menu in All Programs/Accessories/System Tools. It calculates how much disk space you can free up by compressing older files, clearing the browser cache, getting rid of temp files, and more.

PC Backups Made Easy

If Stomp's *BackUpMyPC* looks familiar, you've probably worked with Veritas *Backup Exec*. *BackUpMyPC* is based upon that ubiquitous application, and it allows you to hunt through a hard drive and networked storage devices to back up whatever you like.

BackUpMyPC has a simple, straightforward interface that lets you perform backups on the spot or schedule them to take place during off hours. It works with nearly any form of removable media, including recordable optical media, tape, Zip, Jaz, external hard drives, and more.

You can choose which files to back up or perform full system backups, which you can then catalog by date so if your PC's hard drive crashes, you're prepared to recover mission-critical data with a few swift strokes.



BackUpMyPC *features an awesome, smooth interface that lets the user back up and restore files in a jiffy.*

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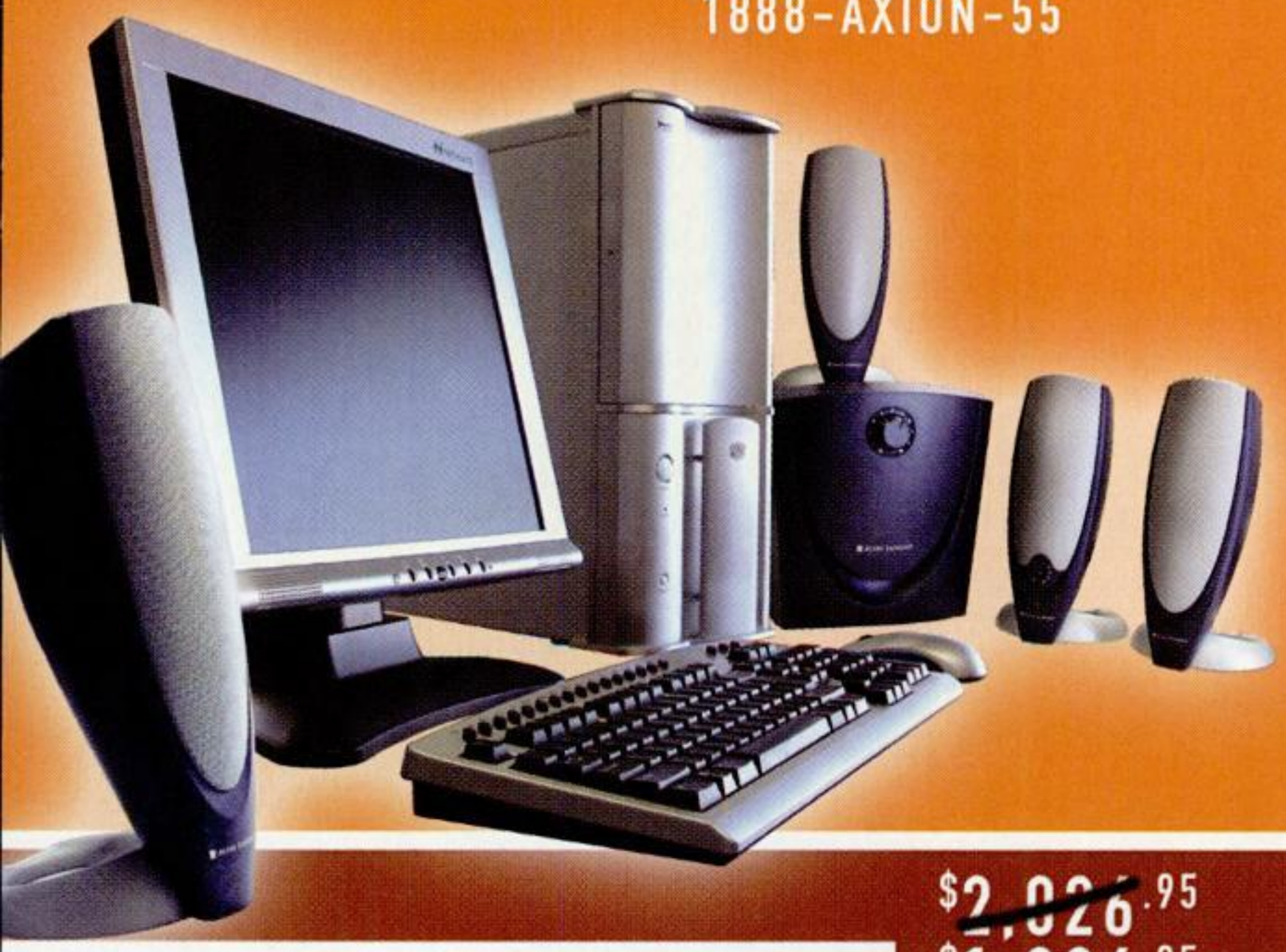

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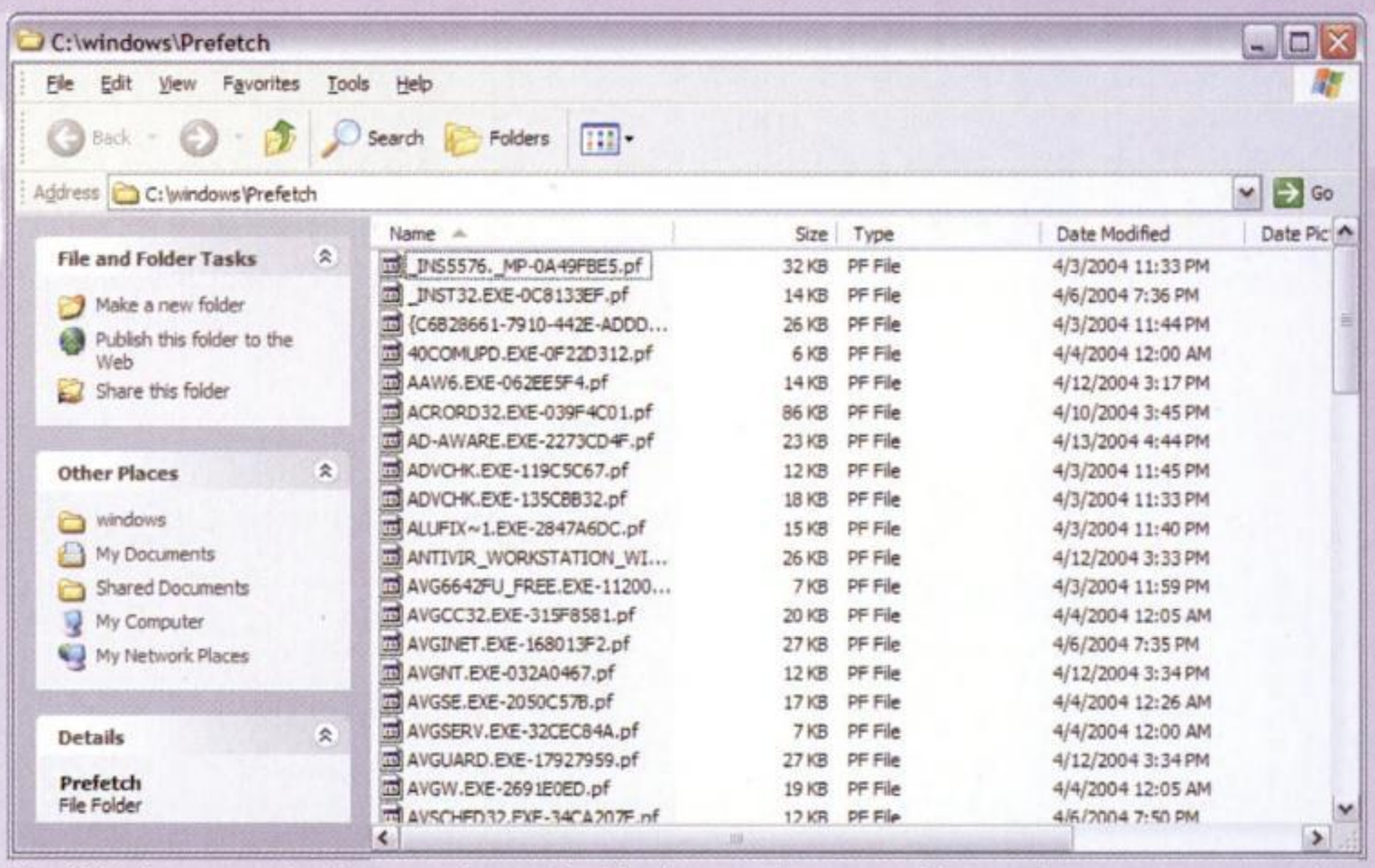
Disk Cleanup for (C:)
Disk Cleanup
More Options
You can use Disk Cleanup to free up to 2,322,562 KB of disk space on (C:).
Files to delete:
Downloaded Program Files 0 KB
Temporary Internet Files 756 KB
Office Setup Files 279,532 K
Recycle Bin 15 KB
Temporary files 0 KB
Total amount of disk space you gain:
Description
Downloaded Program Files are ActiveX controls and Java applets downloaded automatically from the Internet when you view certain pages. They are temporarily stored in the Downloaded Program Files folder on your hard disk.
View Files

Disk Cleanup *analyzes your computer's hard drive and presents you with options to help you recover space, from compressing older files to wiping out your temp directory.*


C:\windows\Prefetch
File Edit View Favorites Tools Help
Back Search Folders
Address C:\windows\Prefetch
Go
File and Folder Tasks
Make a new folder
Publish this folder to the Web
Share this folder
Other Places
windows
My Documents
Shared Documents
My Computer
My Network Places
Details
Prefetch
File Folder
Name Size Type Date Modified Date Pic
_INS5576._MP-0A49FBE5.pf 32 KB PF File 4/3/2004 11:33 PM
_INST32.EXE-0C8133EF.pf 14 KB PF File 4/6/2004 7:36 PM
{C6B28661-7910-442E-ADDD... 26 KB PF File 4/3/2004 11:44 PM
40COMUPD.EXE-0F22D312.pf 6 KB PF File 4/4/2004 12:00 AM
AAW6.EXE-062EE5F4.pf 14 KB PF File 4/12/2004 3:17 PM
ACRORD32.EXE-039F4C01.pf 86 KB PF File 4/10/2004 3:45 PM
AD-AWARE.EXE-2273CD4F.pf 23 KB PF File 4/13/2004 4:44 PM
ADVCHK.EXE-119C5C67.pf 12 KB PF File 4/3/2004 11:45 PM
ADVCHK.EXE-135C8B32.pf 18 KB PF File 4/3/2004 11:33 PM
ALUFIX~1.EXE-2847A6DC.pf 15 KB PF File 4/3/2004 11:40 PM
ANTIVIR_WORKSTATION_WI... 26 KB PF File 4/12/2004 3:33 PM
AVG6642FU_FREE.EXE-11200... 7 KB PF File 4/3/2004 11:59 PM
AVGCC32.EXE-315F8581.pf 20 KB PF File 4/4/2004 12:05 AM
AVGINET.EXE-168013F2.pf 27 KB PF File 4/6/2004 7:35 PM
AVGNT.EXE-032A0467.pf 12 KB PF File 4/12/2004 3:34 PM
AVGSE.EXE-2050C57B.pf 17 KB PF File 4/4/2004 12:26 AM
AVGSERV.EXE-32CEC84A.pf 7 KB PF File 4/4/2004 12:00 AM
AVGUARD.EXE-17927959.pf 27 KB PF File 4/12/2004 3:34 PM
AVGW.EXE-2691E0ED.pf 19 KB PF File 4/4/2004 12:05 AM

The Windows *prefetch gets clogged with data, and some of it pertains to programs that aren't even installed anymore. Clear the folder on a regular basis.*

Monthly

Archive Old files!

Data that you create but end up not using languishes in folders, doing nothing but taking up hard drive space. Digital photos, *Word* documents, spreadsheets, movies, and other files you rarely open are your targets for this task: Archive them on removable media and delete them from your hard drive. Label the media clearly and consider making a spreadsheet listing of the files on each CD or DVD, or whatever you use, so that if you find yourself looking for something specific you can easily pinpoint its location.

Clear the Prefetch

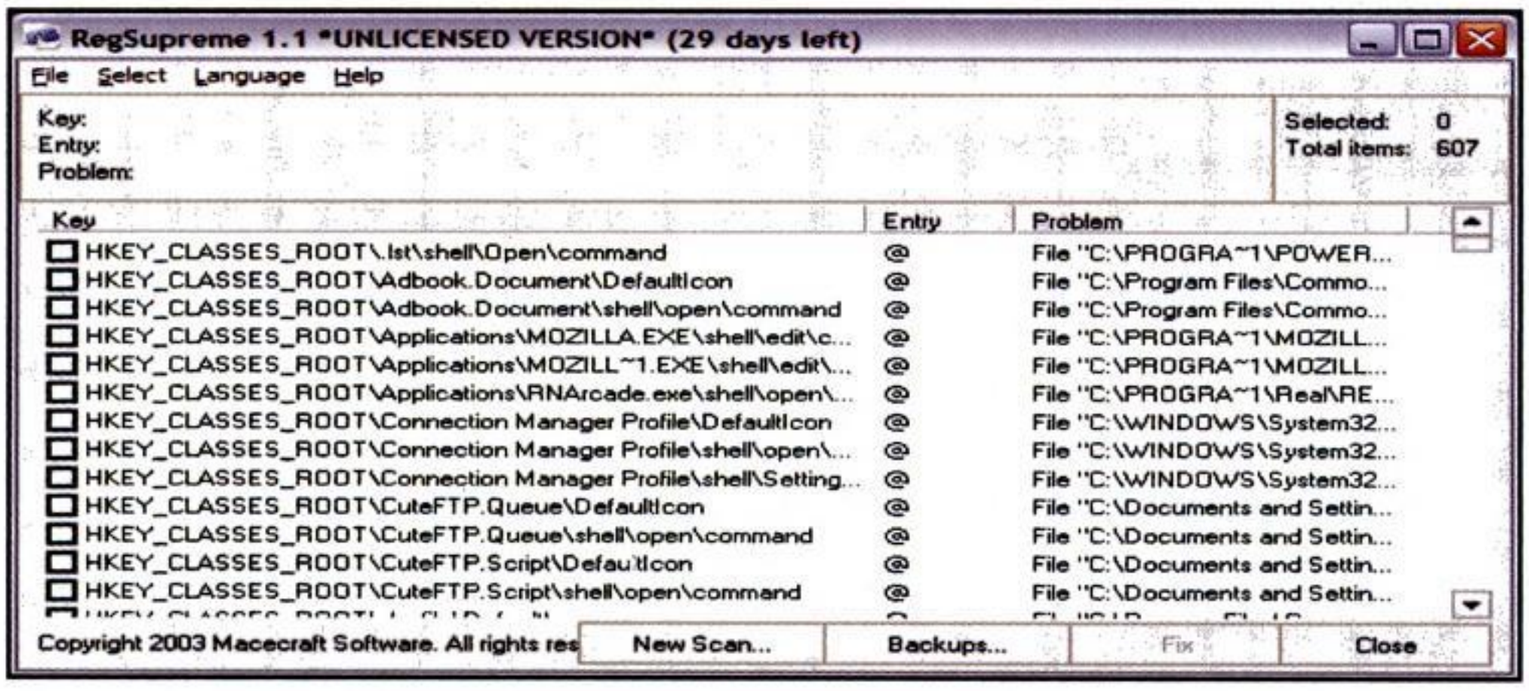
Look in C:\Windows\Prefetch, and you'll find prefetch files for all the applications you run. Windows monitors how your programs operate and creates "prefetch" data, which operates much like a cache. The prefetch data consist of items Windows thinks your programs will request; when they do, loading the data from prefetch is a bit quicker than finding it in other areas of the hard drive. Some of those applications might not be on the A-list of files you use all the time. It's safe to wipe out the contents of this folder completely; applications that need to store prefetch data will simply recreate it. Clearing the folder won't hurt performance, and it will free up disk space by getting ret rid of files that were dropped there by applications you rarely use.

Clean the Registry

It's a good idea to keep your desktop clear of icons, but in a powerful system you won't notice a difference in performance if your desktop is clean or cluttered. You might, however, notice a lag in the time it takes icons to appear on the screen, or in the animation of the Start menu. Clear the icon cache by locating the file IconCache.db. It usually resides in your profile directory (/Documents and Settings/<user name>/Local Settings/Application Data). Rename it, change its extension, and reboot; Windows will automatically create a new, refreshed copy. Then, feel free to delete the renamed copy.

Clear Icon Cache

Programs that you install make entries in the Registry. Often, when you uninstall them, they maintain a ghost-like presence in the Registry, leaving orphaned entries and generally gumming up the works. Use a utility like *RegSupreme* from Macecraft Software (www.jv16.org, $12.95). It can find and eliminate unnecessary Registry entries. Just be sure to back up your Registry before you run it: launch RegEdit (click Start/Run, type in *regedit*, and hit enter), go to the Registry pulldown menu, select "Export Registry file," make sure the "All" radio button is selected, type in a name (such as the date; for example RegBackup_5-30-04), and hit Save.


RegSupreme 1.1 *UNLICENSED VERSION* (29 days left)
File Select Language Help
Key:
Entry:
Problem:
Selected: 0
Total items: 607
Key Entry Problem
HKEY_CLASSES_ROOT\.lst\shell\Open\command @ File "C:\PROGRA~1\POWER...
HKEY_CLASSES_ROOT\Adbook.Document\DefaultIcon @ File "C:\Program Files\Commo...
HKEY_CLASSES_ROOT\Adbook.Document\shell\open\command @ File "C:\Program Files\Commo...
HKEY_CLASSES_ROOT\Applications\MOZILLA.EXE\shell\edit\c... @ File "C:\PROGRA~1\MOZILL...
HKEY_CLASSES_ROOT\Applications\MOZILL~1.EXE\shell\edit\... @ File "C:\PROGRA~1\MOZILL...
HKEY_CLASSES_ROOT\Applications\RNArcade.exe\shell\open\... @ File "C:\PROGRA~1\Real\RE...
HKEY_CLASSES_ROOT\Connection Manager Profile\DefaultIcon @ File "C:\WINDOWS\System32...
HKEY_CLASSES_ROOT\Connection Manager Profile\shell\open\... @ File "C:\WINDOWS\System32...
HKEY_CLASSES_ROOT\Connection Manager Profile\shell\Setting... @ File "C:\WINDOWS\System32...
HKEY_CLASSES_ROOT\CuteFTP.Queue\DefaultIcon @ File "C:\Documents and Settin...
HKEY_CLASSES_ROOT\CuteFTP.Queue\shell\open\command @ File "C:\Documents and Settin...
HKEY_CLASSES_ROOT\CuteFTP.Script\DefaultIcon @ File "C:\Documents and Settin...
HKEY_CLASSES_ROOT\CuteFTP.Script\shell\open\command @ File "C:\Documents and Settin...
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New Scan... Backups... Fix Close

Shareware powerhouse RegSupreme *scours your system Registry looking for useless entries, which you can then delete.*

Annually

Reinstall XP!

It may seem extreme, but once a year you should consider wiping your hard drive and installing a fresh, clean copy of Windows. You don't need to back up program files; you can reinstall your programs after you install Windows, so concentrate on your data files. You'll need to back up data files you can't live without. Make a thorough list—see our box-out for a good checklist

Back-up Everything

Back up these important files, and anything else you can think of, to CDs, DVDs,

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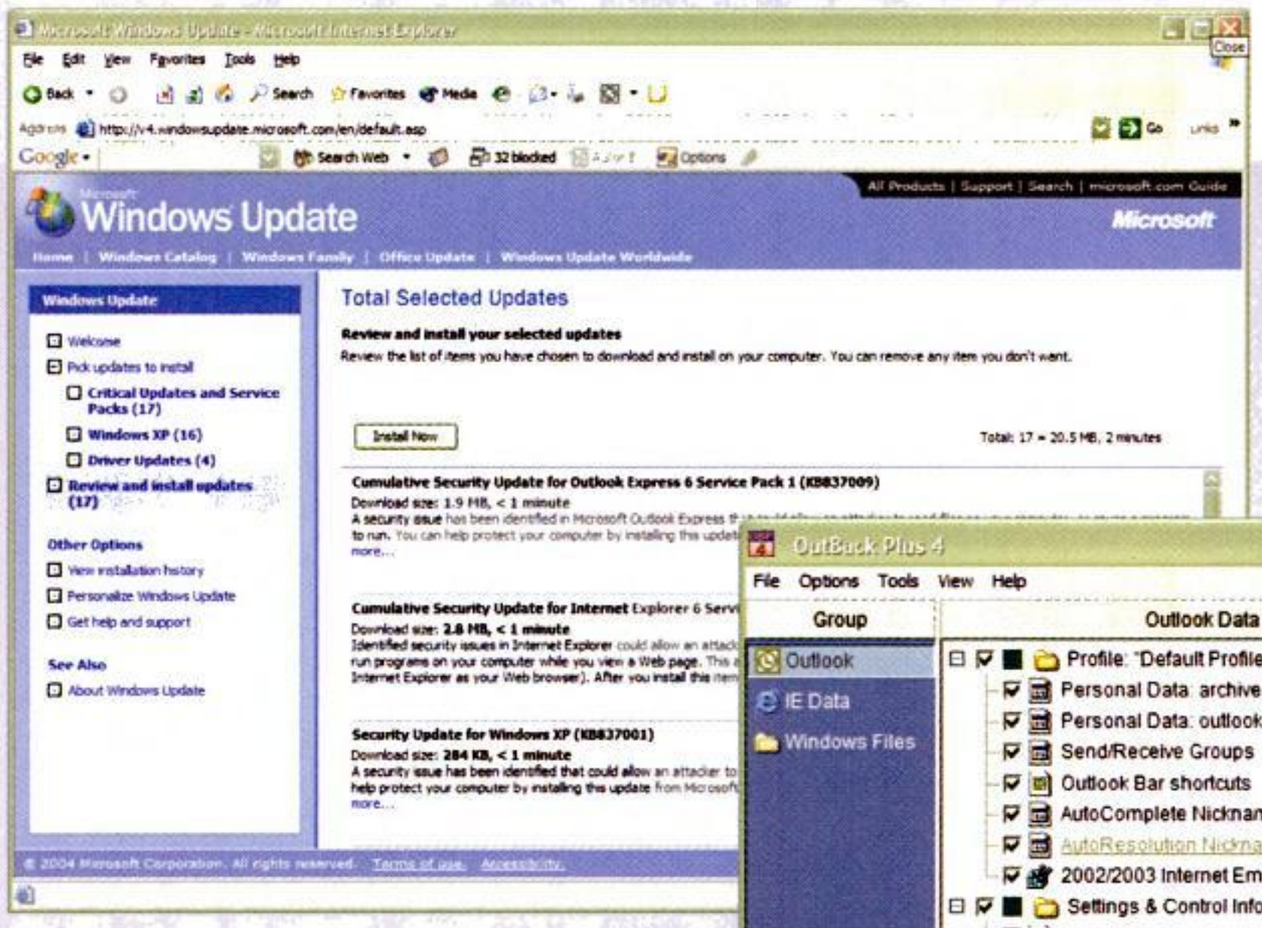
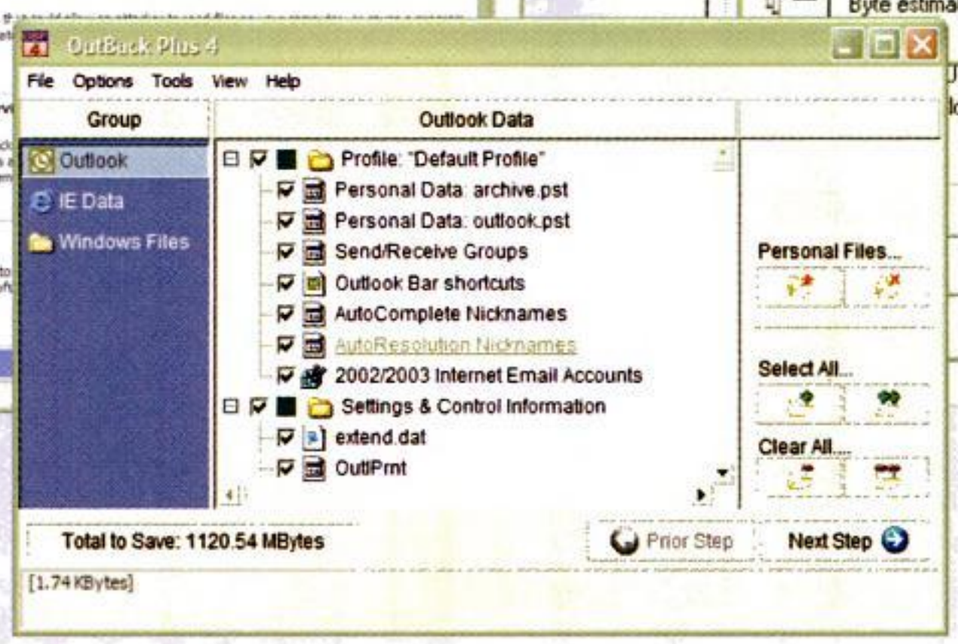
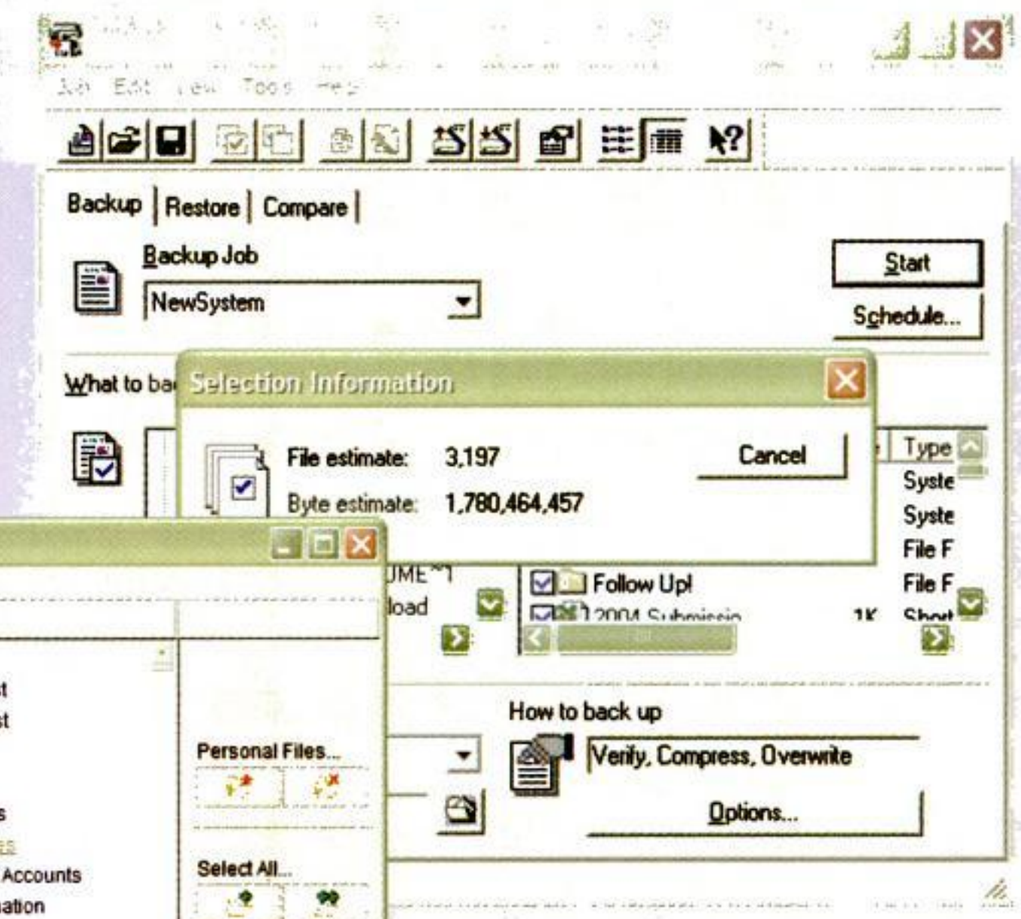

Windows Update
Total Selected Updates
Review and install your selected updates
Review the list of items you have chosen to download and install on your computer. You can remove any item you don't want.
Install Now
Total: 17 = 20.5 MB, 2 minutes
Cumulative Security Update for Outlook Express 6 Service Pack 1 (KB837009)
Cumulative Security Update for Internet Explorer 6
Security Update for Windows XP (KB837001)

Use Windows Update *to overhaul your new* Windows *installation with all of the current patches.*



Microsoft's own backup tools are inadequate. You are well advised to use a third-party program like OutBack Plus.



BackUpMyPC *is getting ready to create an exhaustive backup of our current Windows installation, parts of which we'll restore after reinstalling Windows.*

tape, or something else from which you'll be able to recover the data. You can use a backup program (discussed earlier) or simply copy the data to your removable media, or an extra hard drive. Remember that if you do use a backup program, you'll have to install it after you install Windows in order to regain access to your data. (Note: While you can export your e-mail and address book, *Outlook* doesn't include a method to export *all* of its settings, messages, contacts, and rules. For this, you must use a utility like *OutBack Plus*, available for $30 from AJ Systems at www.ajsystems.com.

Make sure you have any updated drivers you've downloaded for your hardware in a handy location—such as a folder on an alternate internal or external hard drive—before you begin. Have your installation software on hand for stuff like your modem, your network interface card, your motherboard, your soundcard, and your graphics card.

Delete Your Windows Partition

When you're absolutely sure you've backed-up everything, modify your CMOS setup program to tell the BIOS to boot off your CD drive first, and your hard drive second. Boot from the Windows XP CD. The Windows XP installation process will start. When the first setup screen appears, press Enter. Then the license agreement will pop up. Read it thoroughly (Yeah, right!) and hit F8 to sign your life away. The setup program will find your current installation of Windows and ask if you wish to repair it. Select no and move along to the partitioning screen.

The setup program will show your hard drive partitions. Unless you did some fancy partitioning when you last installed Windows, you'll probably see a single, large partition. Take a deep breath, and follow the prompts to delete the Windows partition. This is the part at which you destroy your current installation; there's no going back from here. Press D, then Enter, and then L.

The next screen will show unpartitioned space. Follow the prompts to create one huge partition, or, if you like several partitions. (On larger drives we like to set up one partition for our OS and another for programs, games, or digital pictures, for example.) The next screen will let you choose the file system; we recommend NTFS because it uses disk space more efficiently than FAT32. Let the setup program format the partition. Setup will then copy some files to the hard drive and reboot. When you see the "Press any key to boot the CD" prompt, don't do it! Let the system boot from the hard drive.

Follow the prompts, and Windows will launch a welcome screen, followed by a network setup screen. Windows may or may not have drivers for your modem or network interface card; in any case, you'll want to load newer drivers for them now. Next, Windows will prompt you to activate your installation. You have a 60-day grace period to activate Windows. If you don't activate now, Windows will only remind you later, so if your internet connection is up, get it over with.

Update Your Drivers

Next, you'll *finally* see the Windows desktop. The first thing to do is install your hardware's device drivers. When your drivers are all in, make your way to the Internet by running Network Setup Wizard (if you're using broadband) or by loading up your ISP's software and dialing out with your modem. Check for newer drivers—or drivers you'd missed—for your equipment and install them now.

Next, head to Windows Update and install all of the critical updates, service packs, the latest DirectX version, and whatever else looks good to you. You'll probably have to run Windows Update more than once and reboot in between, as some updates must be installed separately from the others.

When Windows is up to date, install any applications you plan to use, such as *Microsoft Office,* games, and so on. Then, restore your backed up data. Windows Backup and *BackUpMyPC* let you specify a target directory when you restore data; plop your stuff wherever you like. If you copied stuff to removable media, copy it back onto your hard drive.

Piece of cake, right? Okay, maybe not, but if your spanking fresh XP installation isn't obviously faster than before, we'll eat our hats. ■

Backup File Checklist

- Office documents: word processing files, spreadsheets, and presentations
- Email data – messages and address book
- Game saves
- Digital photos and other artwork
- Movies that you've created or edited
- MP3s, OGGs, and other music files
- Browser bookmarks/favorites
- Downloaded files you can't replace
- Passwords and security codes for web sites, *Quicken* files, and anything else that's encrypted
- Activation codes for applications that you downloaded and registered

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Step Four

Maximize Your Broadband Connection

Obtaining a fat online pipe is one of the best upgrades ever. Here's how to choose the right broadband service, and make sure it's performing at its optimum level.

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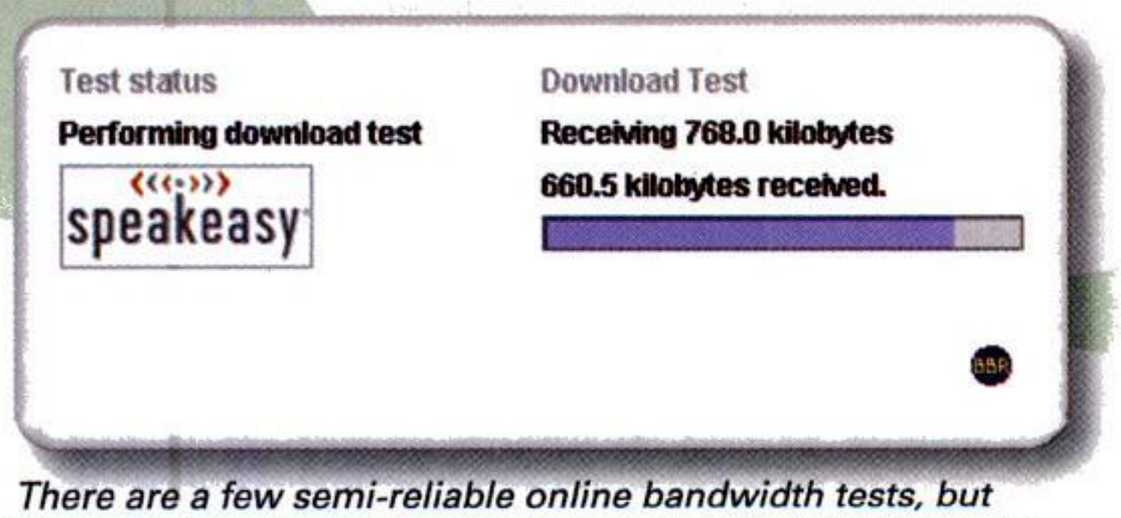
Whether you go with satellite, cable, or DSL for your broadband connection, one thing will remain a constant: You're going to shell out hefty amounts of cash for the luxury. ISP providers make some bold speed claims in their marketing, but typically offer little in the way of guarantees. They're certainly not going to tell you when their product's not performing at its advertised rates, so it's up to you to do the detective work. In the following pages, we'll show you *exactly* how to make sure you're getting what you pay for.

Also, if you have more than one machine at home, even if that second machine is a notebook computer, there's absolutely NO reason you should be paying for more than one connection to the Internet. Naturally, your ISP will disagree, as most try to force you to pay an incremental up-charge to set up a connection to their broadband pipe for another one of your machines. Typically, this charge runs $10-$20 a month, which we're sure you could put to good use elsewhere, such as new games. With our help, you can easily set up a shared broadband connection with just a small investment of time and money. After all, why should you pay for what you can rightfully get for free?

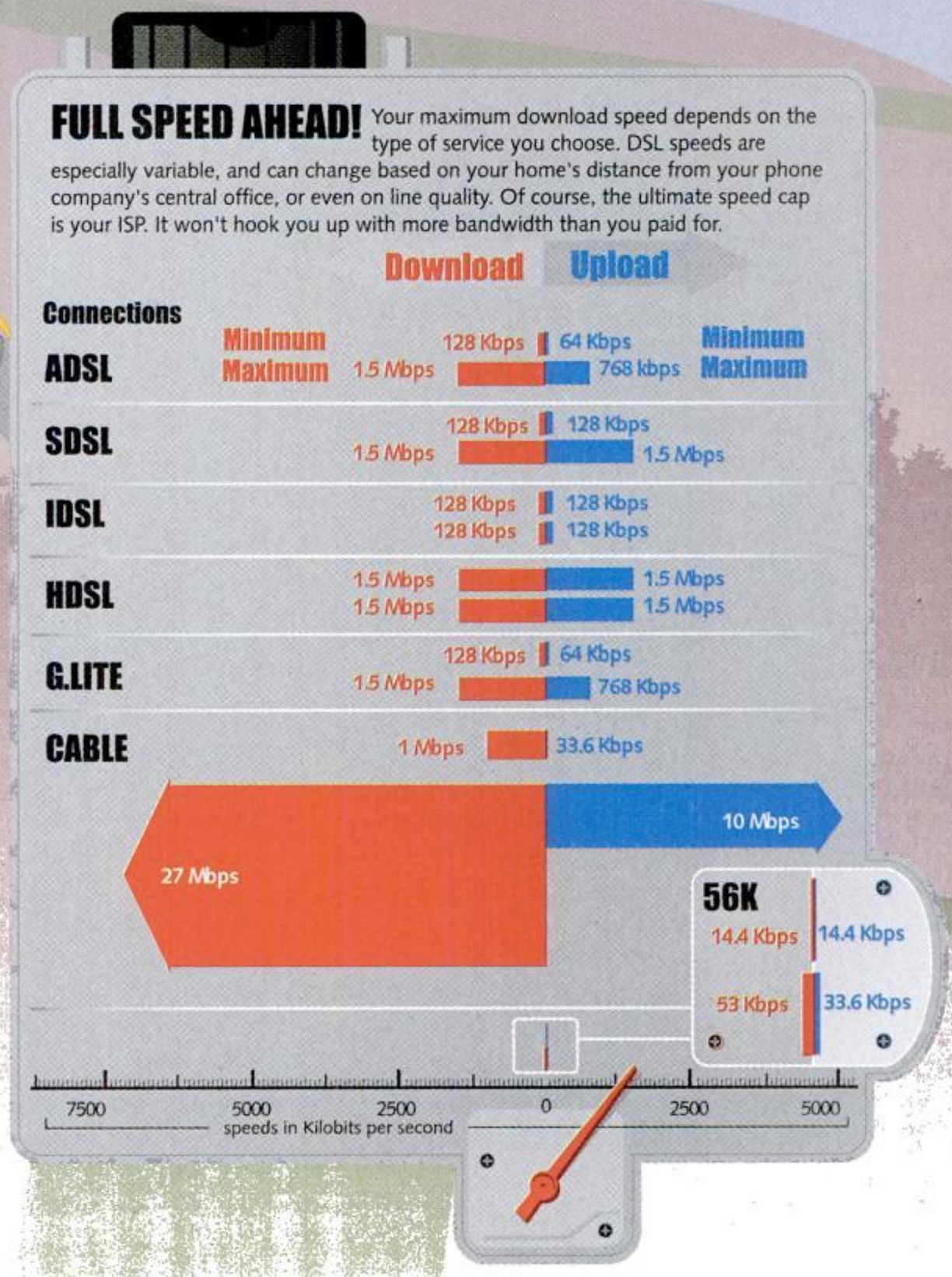
Finally, while we all claim that we use our broadband connection for "work" reasons, let's be honest: Playing games is one of our top usages. Being able to go online and frag your buddies—or complete strangers—in *Quake III Arena* or *Unreal Tournament 2004* makes high-speed Internet access worth the extra cash. (What? You haven't played UT 2004 yet? Get it on the disc included with this magazine for free!) However, all broadband pipes and dial-up connections aren't created equally. And, even if they were, it's likely that many of your opponents have tweaked their settings to give themselves a slight performance edge, which can make all the difference between



There are a few semi-reliable online bandwidth tests, but the most reliable way to measure your connection's speed is to download files from a variety of servers and measure the average speed.

Give Dial-up a Boost!

Broadband access is becoming more ubiquitous these days. However, it's possible that some of you are still living so far out in the boonies—or maybe just a few feet beyond the reach of your local provider's DSL reach—that you're stuck with dial-up as your only means of online access. If so, we feel your pain. Still, we have a few tricks you can use on page 51 to give your modem a kick in the pants.



BROADBAND TIP

How to Test Your Connection Speed

In addition to downloading multiple files from different servers and noting the download rates, there are also a few online connection tests that will give you a rough idea of your connection speed. However, because these online tests usually involve only one server they are not the best way to test your connection speed. Still, they provide a good frame of reference, and here are a few we have used that work well.

http://www.bandwidthplace.com/speedtest/

http://speedtest.dslreports.com

http://www.pcpitstop.com/internet/default.asp

http://www.dslreports.com/tools

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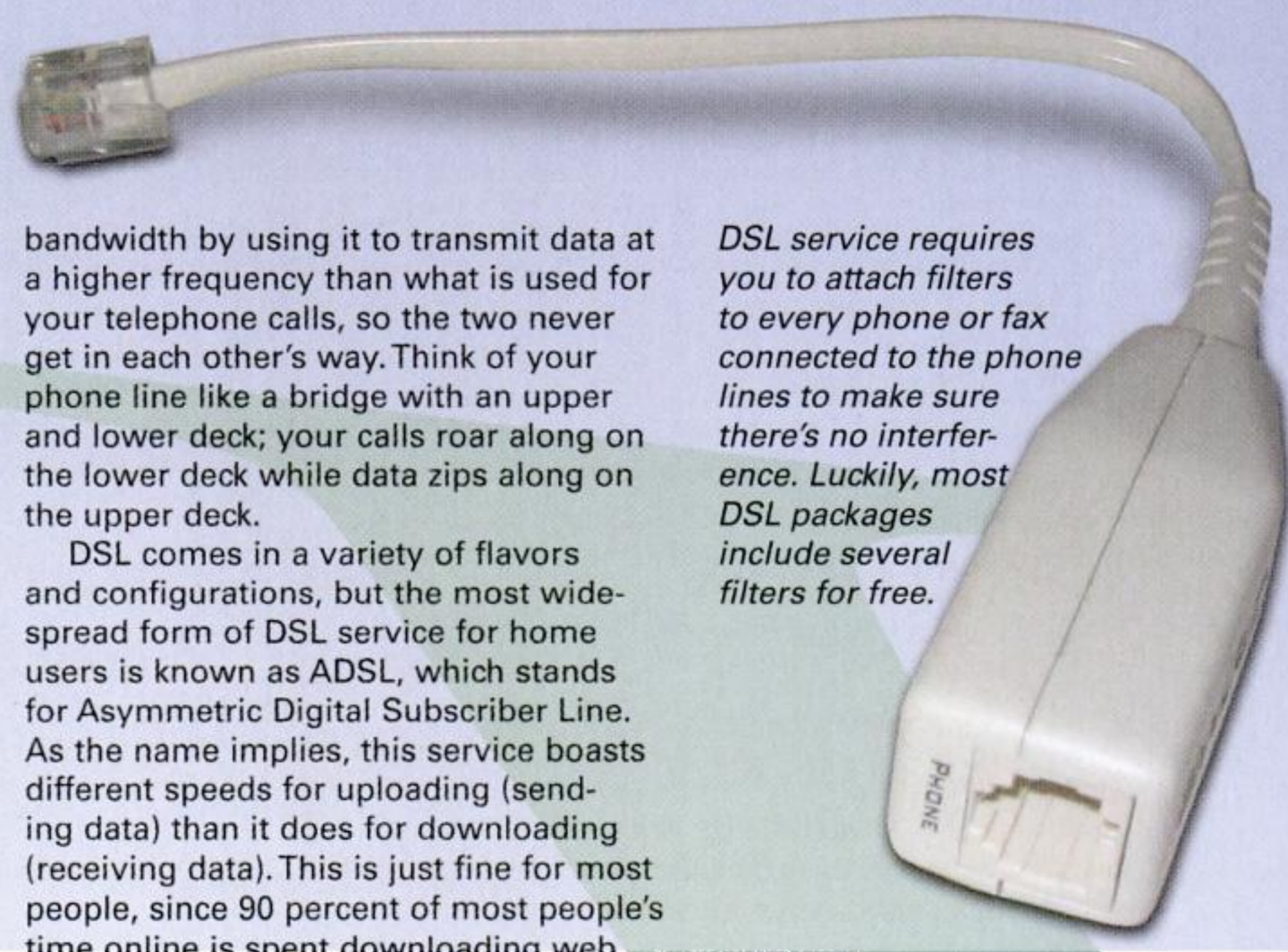
fragging, and being fragged. Make sure you're competing on a level playing field with our custom tweaks for eking the most performance out of some of today's most popular online games.

But before we get to all this juicy stuff though, it's important that you understand at least the basics behind the technology that powers your particular type of broadband pipe. Regardless of whether you use DSL, cable, or even satellite for your online connection, we'll break down the bits and bytes for you.

Digital Subscriber Line

One of the most common forms of high-speed Internet connection service is the Digital Subscriber Line, also known by its acronym, DSL. The technology uses your existing phone line to transmit data at high speeds, and requires only a DSL modem and an Ethernet card to operate. This technology is made possible by the fact that your little phone line is made up of a pair of copper wires that are capable of handling a lot more bandwidth than what is required by mere telephone conversations. DSL capitalizes on this excess bandwidth by using it to transmit data at a higher frequency than what is used for your telephone calls, so the two never get in each other's way. Think of your phone line like a bridge with an upper and lower deck; your calls roar along on the lower deck while data zips along on the upper deck.

DSL comes in a variety of flavors and configurations, but the most widespread form of DSL service for home users is known as ADSL, which stands for Asymmetric Digital Subscriber Line. As the name implies, this service boasts different speeds for uploading (sending data) than it does for downloading (receiving data). This is just fine for most people, since 90 percent of most people's time online is spent downloading web pages and files. A typical ADSL package consists of download speeds of up to 1.5 Mbps (150k/second), and upload speeds of around 128 Mbps (12k/second), though most providers offer myriad speed packages that increase in price according to the amount of bandwidth provided. There is also VDSL, which is Very High Bit-rate DSL (very fast DSL, in other words), and SDSL, which is Symmetric Digital



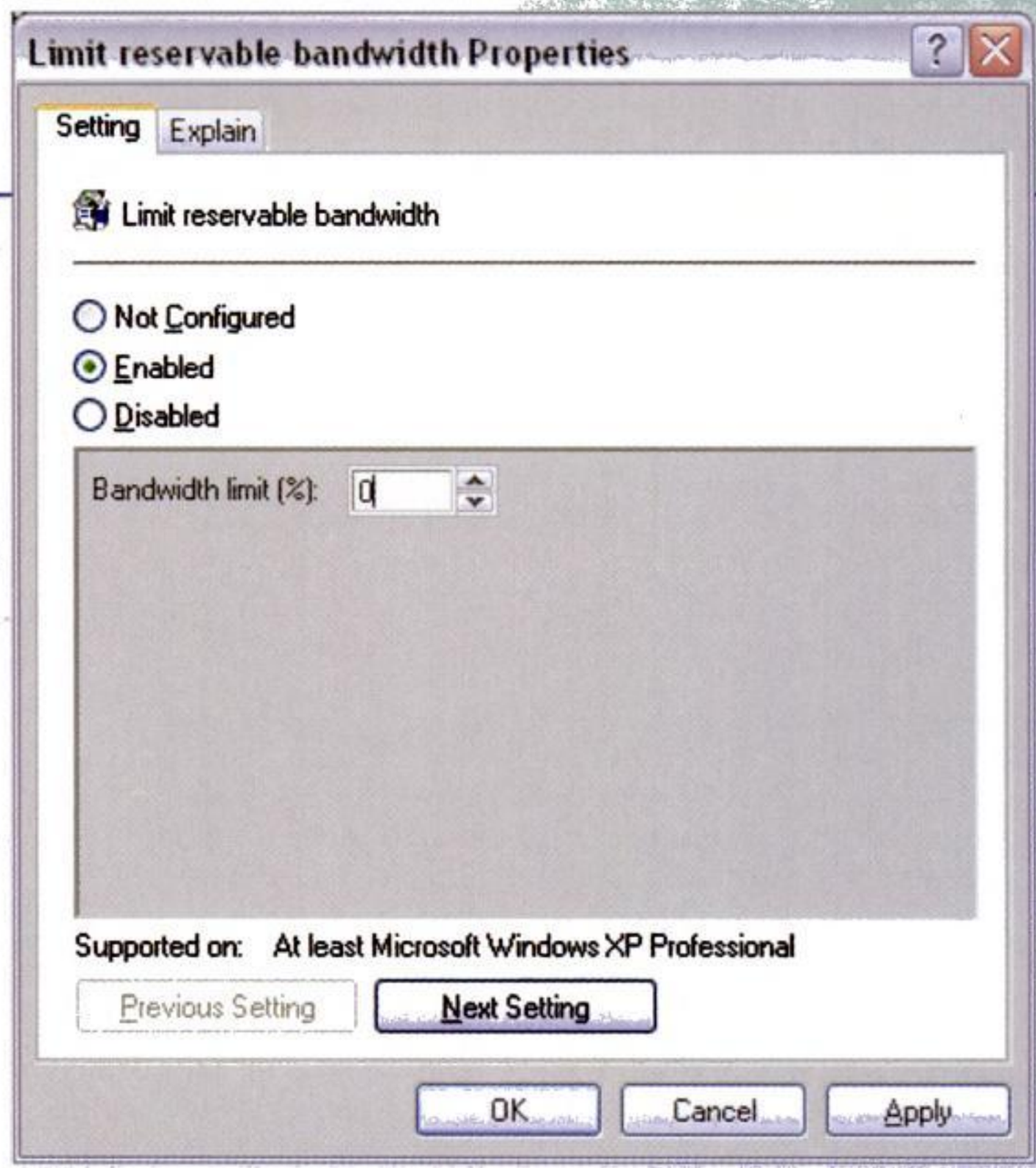
DSL service requires you to attach filters to every phone or fax connected to the phone lines to make sure there's no interference. Luckily, most DSL packages include several filters for free.

BROADBAND TIP

Open up the Pipe!

Windows XP is much better at handling high-speed Internet connections than the "made for dial-up" Windows 98, but there is still one little tweak that can increase your connection speed. The following tweak only works with Windows XP Professional edition:

- Click Start, Select "Run"
- Type "**GPedit.msc**"
- Expand the "local computer policy" branch
- Expand the "administrative templates" branch
- Expand the "network branch"
- Highlight the "QoS Packet Scheduler" in the left window
- In the right window, double-click the "limit reservable bandwidth" setting
- On the setting tab, check the "enabled" item
- Where it says "Bandwidth limit %," change it to read 0
- Close out of this window and reboot to make the new settings active.



A little tweak in Windows XP Professional *allows your operating system to utilize the full amount of bandwidth offered by your Internet connection.*

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Subscriber Line (same speed up and down). These ultra-fast services are very expensive, and amount to overkill for most home users.

DSL technology is capable of sending data at a maximum rate of 8 Mbps, at a distance of about 6,000 feet, but how fast your individual service will be is determined by both the package you select as well as your proximity to the service provider's central office. DSL service is limited by a boundary of 18,000 feet, so if you are further away from the CO than this distance, you are out of luck and will not be eligible for service. Conversely, if you are extremely close to the CO, you might be able to obtain excellent speeds, whereas people at the very end of the line, around 15,000 feet away or so, might see lower speeds than expected.

The good news is that DSL service is a connection between your home computer and the central office, so there is no sharing involved whatsoever. This means you won't see your bandwidth drop during peak hours, and that, generally, you should be able to obtain the speeds promised by the provider most of the time. Of course, your download speeds are always determined by how fast other sites can send data to your computer, so you shouldn't expect 100 percent of your allotted bandwidth when downloading from websites across the world or from sites that are slow in general.

Cable Modem

Along with DSL, cable modem Internet service is the most popular form of high-speed Internet service among home consumers, due to its blazing speed and high level of availability. After all, the majority of American households already have cable TV service, so adding cable internet access (where available) is quite easy. And just like DSL, cable modem service has many benefits, but also a few drawbacks as well.

Cable modem service works by sending data at high speeds along the same coaxial cable that is used to deliver cable TV content to your home. This cable has several hundred megahertz of bandwidth, yet regular TV channels require only 6 MHz or so per channel, which is why you can have hundreds of channels delivered through one cable. Internet service, for all intents and purposes, is just another cable channel as far as the cable company is concerned.

Due to this excessive amount of available bandwidth, a cable modem Internet connection can reach a theoretical maximum of 30 to 40 Mbps, which is enormous compared to a standard DSL connection of 1.5 Mbps. However, there is a catch: Cable modem users are grouped in clusters and all share a finite amount of bandwidth. So, if nobody on your block is using the Net (say, at 4:00 in the morning), your Internet connection will be insanely fast, but at 8:00 pm on a weeknight you're likely to see it slow down to the speeds of DSL, or even slower depending on the amount of people using your cluster. The good news though, in comparison with DSL, is that a cable modem's bandwidth isn't limited by how far away you are from the provider's central office.

We've used both cable and DSL and can tell you that, from our experience, cable is a lot faster than DSL—sometimes as much as twice as fast. If you have the luxury of choosing between them, we recommend cable, although both are simply awesome compated to the soul-sucking wait times associated with dial-up modems. ■

The Dish on the Dish

Aside from cable and DSL Internet, there is also the option of using a satellite dish to receive high-speed Internet service, though prices and plans, as well as availability, vary widely. The basic technology is pretty straightforward. The company beams its high-speed wireless service into the sky to a satellite orbiting the earth. Your satellite dish, mounted on the roof of your abode and facing south, points up into the sky and picks up the signal.

In general, satellite Internet connection speeds vary from a lowly 255 Kbps (five times faster than dial-up, but much slower than cable and DSL) to 500 Kbps. The downside to satellite Internet is that you have to buy or rent the dish, which is pricey. For example, basic satellite service from EarthLink includes a $750 equipment charge, $250 installation, and $70 a month for service. Second, bad weather often can interfere with the signal (despite what the companies say to the contrary). Also, satellite Internet is not the best solution for gaming, since it offers good throughput but high latency due to the distance the signal must travel (22,400 miles, and that's just one-way!), which means bad pings and no fun when playing games online.

In general, if you can't get cable or DSL, satellite Internet service is much more preferable than dial-up, but we only recommend it if you have no other choices.

BROADBAND TIP

De-regulate Downloads

By default, the version of Internet Explorer that is included with Windows XP limits your number of simultaneous downloads to a paltry two downloads! This is pure bunk, but you can increase the number to whatever you like by hacking the registry. Our standard warnings apply here—before you fool around with your Registry, make sure you back it up. (See page 66 for more on Registry hacking.)

- Click Start >Run and type "**Regedit**"
- Go to HKEY_CURRENT_USER \ Software \ Microsoft \ Windows \ CurrentVersion \ Internet Settings
- Select New > DWORD Value from the Edit menu
- Name the new value "MaxConnectionsPer1_0Server"
- Right-click the MaxConnectionsPer1_0Server value and choose Modify
- Under Base, click the radio button next to Decimal
- In the Value Data box, enter the number of simultaneous connections you want to set (10 is a good value), and click OK
- If you want to increase the number of connections to the server you can repeat steps 3 - 7 using the new value MaxConnectionsPerServer
- Exit the Registry editor and log off, or reboot to make the new settings take effect

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Share Your Broadband Connection

DSL, cable, or satellite. Here's how to pipe it through every PC in your home.

Most broadband Internet connections are fast enough to accommodate 10 stations, not just a single, lonely PC. So, if you have multiple PCs in your house, it's easy to share your broadband connection among them. And you're not limited to only PCs. Your broadband-fueled home network can connect to game consoles, MP3 players, and anything else that speaks TCP/IP.

In this article, we'll show you how to share your connection using NAT routing, a scheme that takes the single IP address assigned by your ISP and shares it with all your TCP/IP devices.

But before you get started, you need to decide what type of broadband router you want. You can either add a second network card to the PC that's already connected to the Net and use built-in Windows software to handle routing functions, or you can buy an inexpensive stand-alone router-in-a-box that does the same thing. The strategy you choose depends on your needs.

The router-in-a-box provides easy 24/7 Internet connectivity to every PC in your home, but may preclude you from hosting multiplayer game sessions for certain games. On the other hand, if you use your PC as the router, none of the other PCs on your LAN will have access to the Internet if your router PC isn't powered up. That's the bad news. The good news is that using an existing PC for routing functions is less expensive and easier to configure than the router-in-a-box method. Most routers-in-a-box cost between $100 and $150, and include an integrated hub with four or five Ethernet ports. For a couple bucks more, you can add a Wi-Fi connection to the device as well.

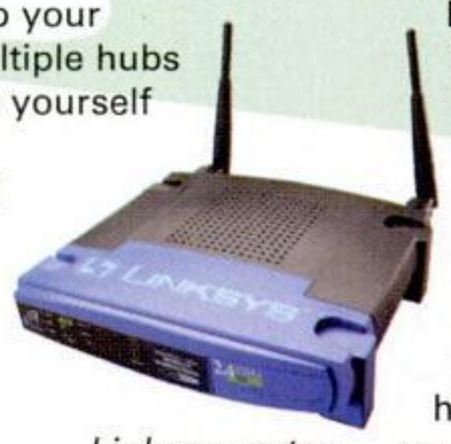
Some rules of thumb: If you have just two devices that will connect to the Internet, you should use an existing PC and the integrated Windows software. If you want to connect three or more devices, it will be more convenient to use a stand-alone router. There are also some more advanced options—such as using a dedicated Linux or Windows 2000 Server box to do your routing—but they're more difficult to configure and only add features (such as web and e-mail servers) that most home users will never need.

Step 1:
Make a Shopping List

Whether you choose to use a dedicated PC or a router, you'll need some additional parts, the first of which is a hub, a device with multiple Ethernet ports that lets you connect more than two devices to a network. You'll need a hub with one port for each device you intend to wire in. Wireless devices don't need their own ports, but your wireless access point does, unless it's integrated into your router. You can daisy chain multiple hubs together, but you should leave yourself some room for expansion.

CAT-5 Ethernet cables

In addition to the hub, you'll need an Ethernet network card (NIC) for each device you want to connect. Most PCs ship with Ethernet support built directly into the motherboard, but you should confirm that each candidate for your network is Ethernet-ready before you go to the store. An Ethernet port looks like a wide phone jack, and usually has a pair of lights beside it. You should be able to purchase a good PCI Ethernet card for less than $30. And remember, if you're going to use your PC as the router, you'll need two network cards for that machine.



Linksys router

Unless your network is going to be 100 percent wireless—which we don't recommend—you'll need a segment of CAT-5 Ethernet cable for each PC you intend to connect to the network. You'll also need one segment to connect the router to your broadband modem, and one segment to connect the router to the hub or wireless bridge (if it's not integrated in the router). Make sure you have some slack in the cables, especially if you plan to run them around at floor level. You don't want to trip over a cable and destroy your entire network.

If you want to network some PCs that are particularly far away from your router, it's easier to connect them wirelessly. Right now, 802.11b and 802.11g wireless devices offer the best balance of speed, cost, and range. The newer 802.11g devices provide faster connections than 802.11b, but we've experienced some compatibility problems with all the 802.11g products we've tested to date. Regardless, if you want to make part of your network wireless, you'll need either a router that includes 802.11b or 802.11g support, or a stand-alone wireless bridge. Of course, you'll also need wireless network cards for each device you want to connect wirelessly.

D-Link DGE-500T Ethernet card

To sum up, here are your ingredients:

- Either a stand-alone router (like the Linksys WRT54G), or a PC with Windows ME, 2000, or XP and two network cards

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- A broadband connection that uses Ethernet to connect to your current PC
- An Ethernet cable for each PC you intend to connect, plus one cable for the router and one for the hub
- A network card for each PC you intend to connect to the wired LAN
- (Optional) A Wi-Fi bridge and Wi-Fi network cards for each PC you want to connect wirelessly to the network
- If you're going to get a stand-alone router, feel free to skip Step 2B. Otherwise, read on.

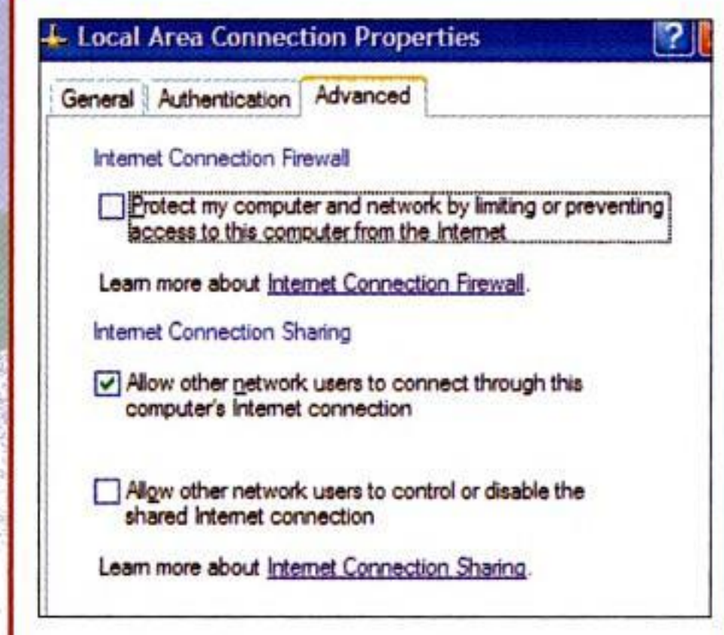
Step 2a:
Configuring Your LAN Using an Existing PC and Internet Connection Sharing

Now that you've decided to use an existing PC as your router, it's time to get to work. Assuming the PC you want to use as the router is already hooked up to your broadband connection, all you need to do is install another network card in the PC, reconfigure some cables, and make a few minor software tweaks.

Power down your PC and open the case. Find an empty PCI slot and remove the slot cover. Install the new network card, screw it into place, and replace the case cover. If you have some sticky labels, it's a good idea to label the network connections, in case you ever have to disconnect everything. Label the card you just installed "Internal" and the original network card "External." Once you've restarted Windows and installed the drivers for your new card, you can move to the next step, software setup.

Installing Internet Connection Sharing is very simple in Windows XP. Go to the Control Panel, then Network Connections, and right-click your *external* network connection. This will most likely be named Local Area Connection or Local Area Connection #1. Essentially, you want the network card that's connected to your cable or DSL modem. Go to Advanced, then check the box labeled "Allow other network users to connect through this computer's Internet connection."

That's all there is to it. Now you need to take one of the Ethernet cables you bought and run it from the Internal network card on the PC to the hub. If you can connect to the Internet—try browsing to **www.google.com** as a test—and see twinkling lights on the hub, you can safely proceed to Step 3.


Local Area Connection Properties
General
Authentication
Advanced
Internet Connection Firewall
Protect my computer and network by limiting or preventing access to this computer from the Internet
Learn more about Internet Connection Firewall.
Internet Connection Sharing
Allow other network users to connect through this computer's Internet connection
Allow other network users to control or disable the shared Internet connection
Learn more about Internet Connection Sharing.

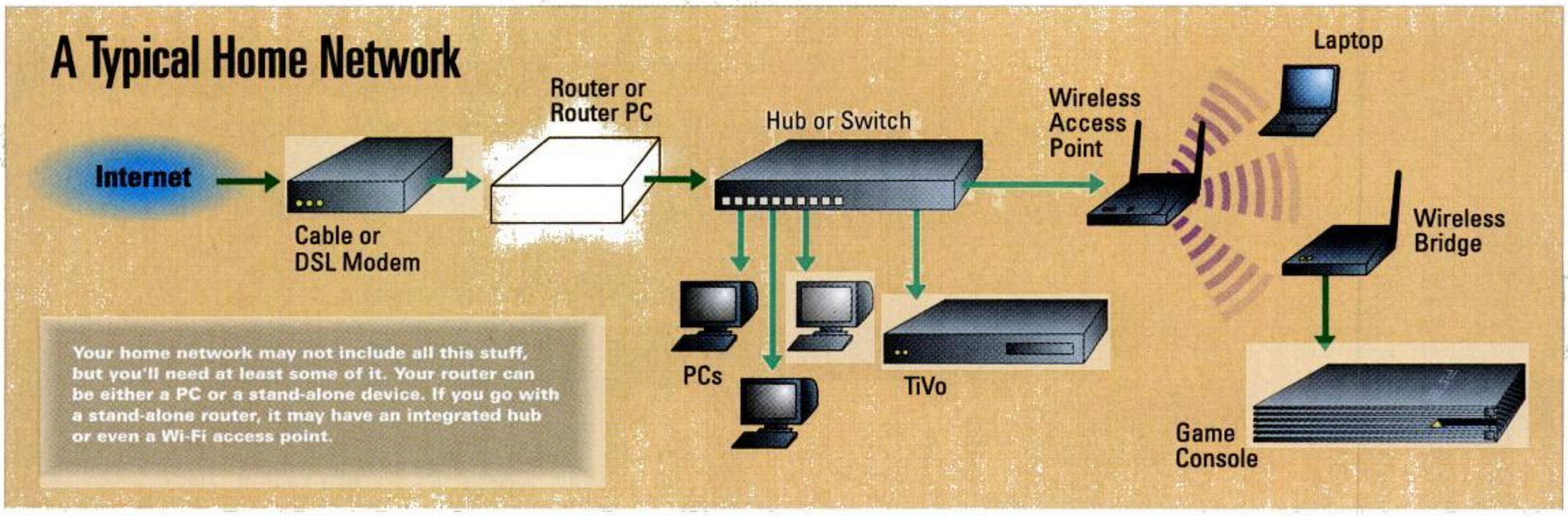
If you've got a couple of computers that need a network connection, and you don't mind running your main PC when they need access, Internet Connection Sharing is built into Windows, and is easy to use.

Step 2B:
Configuring your LAN Using a Stand-alone Router

Before you begin configuring your router, you'll need your ISP's settings. When you first signed up for your broadband connection, you should have received an e-mail or letter with all the information about your settings. Most ISPs use dynamically configured IP addresses, but if you have to log in to your broadband connection using PPPoE, you'll need to have your IP info and login. If you can't find that info, call your ISP's support line to request it.

Now you'll want to connect your PC to the router. Connect your cable or DSL modem to the port labeled "WAN" or "Internet" on the router. If you're using a stand-alone hub, you need to connect the router's LAN port to your hub and run another Ethernet cable from one of the ports on the hub to your PC's network card. If the hub's integrated into your router, you can just run a line between your PC and a spare port on the router.

Now you should follow the instructions the manufacturer provides for configuring your router. In most cases, you'll need to point your web browser to a special, private IP address, and then enter the info your ISP provided. Once your router's set up, and you can connect to the Internet from your PC—try **www.google.com** to test—proceed to Step 3.


A Typical Home Network
Internet
Cable or DSL Modem
Router or Router PC
Hub or Switch
Wireless Access Point
Laptop
Wireless Bridge
PCs
TiVo
Game Console
Your home network may not include all this stuff, but you'll need at least some of it. Your router can be either a PC or a stand-alone device. If you go with a stand-alone router, it may have an integrated hub or even a Wi-Fi access point.

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Step 3:
Running Cables

Now your local network has an Internet connection, but only one of your PCs is connected to it. What you need to do next is connect your other PCs and networked devices to the LAN. If they're in the same room, it's as easy as running a long Ethernet cable from the hub to the other PCs, but it's not always that simple.

There are a few tricks that can make longer cable runs easier. If your home has carpet, you can usually squeeze an Ethernet cable into the gap between the baseboard and the carpet. By doing this, you can get a cable from one side of a room to the other completely out of sight. Make sure you leave enough slack at both ends of the cable in case you need to move the PC or hub.

It's easy to run cables to a nearby room if you have a crawl space under your house, even if you don't want to drill holes in the floor. If you have central air or heat, and your home has floor registers, you can usually slide an Ethernet cable between the edge of the vent and the floor. Make sure you don't strip the cable when you're pulling it past the jagged metal vent.

Squeezing a cable into the gap between a heating duct and the floor is an easy and nondestructive way to get cables into your crawl space.

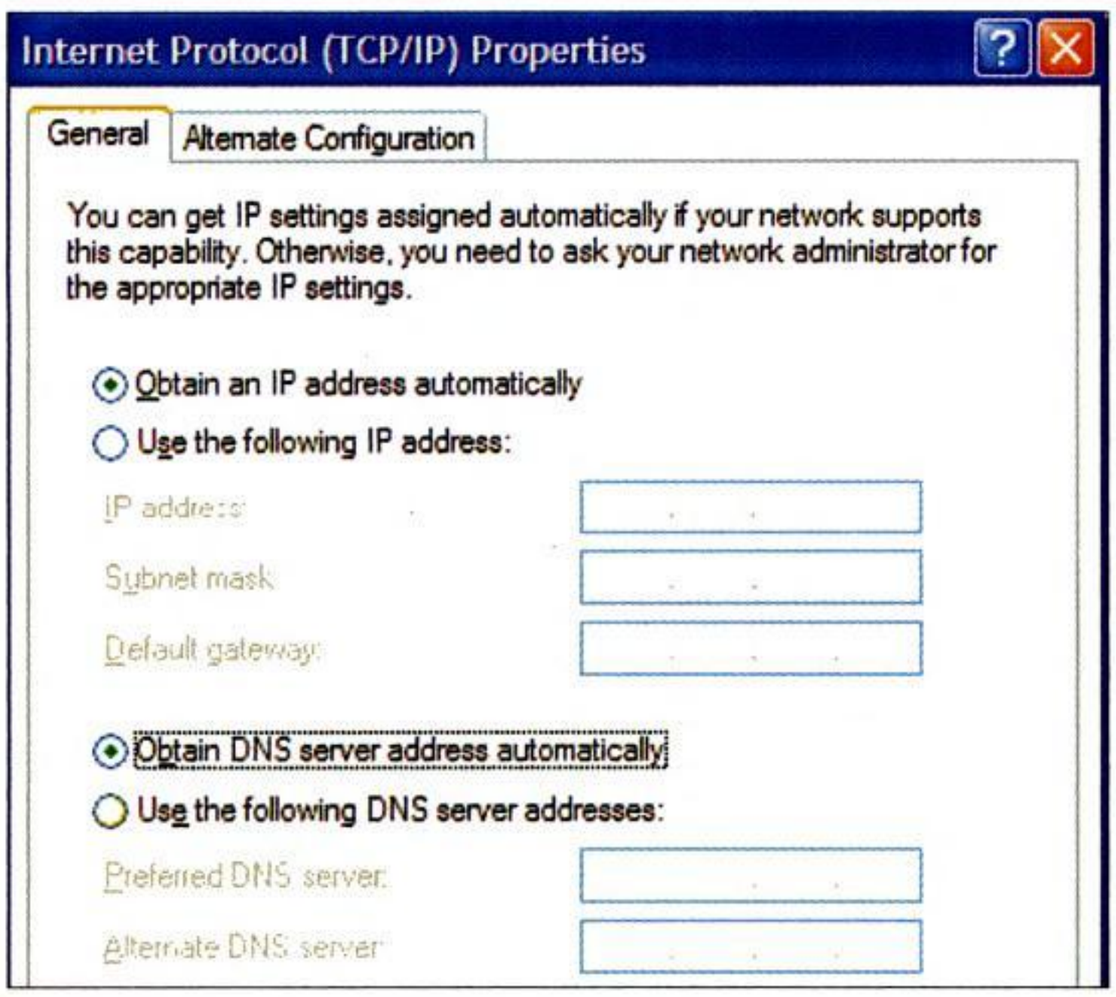
If the above tips won't work in your home, you can run cabling around the perimeter of your room. Most hardware stores sell small clips that you can nail into the baseboard to keep your Ethernet cables against the wall and out of the way. If you have to run a cable across a doorway, make sure you tape it to the floor so that no one will trip over it.

Remember: You can connect additional hubs to the first one. So, if you have a room a long way from your hub with two (or more) PCs, there's no reason to run two Ethernet cables to that room, just run one cable to that room, connect it to a hub, and then connect the devices to the new hub.

If you don't want to muck about in your crawl space, you can also use a wireless link to get the job done, but it will be expensive. If you already have a wireless access point, you'll just need to pick up a Wi-Fi bridge—they're frequently called Wireless Network adapters, and cost about $120. If you don't already have a wireless access point, you can get a pair of bridges and use them as a cableless cable.

Step 4:
Configuring Your Individual PCs

To configure your "peripheral" PCs to connect to the Internet, all you need to do is tell them to automatically get an IP address from your router. Go to the Control Panel, then click on Network Connections. Right-click the Local Area Network connection and select Properties. Double-click TCP/IP settings, and make sure both "Obtain an IP address automatically" and "Obtain DNS server address automatically" are checked. Keep pressing OK until you're out of Network Properties. Some versions of Windows will prompt you to reboot after making this change. Test the Internet connection by going to a web site that's always up, such as **Google.com**.


Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:

Configuring your other Windows PCs to connect to the network is as easy as flipping a switch.

Step 5:
Share and Enjoy!

Once the router's up and running, you're not limited to connecting just PCs. Increasingly, home entertainment devices come with Ethernet ports, so you can connect them to the Internet as well. Xbox, PS2, and GameCube all offer Internet-based multiplayer gaming, and PVRs like ReplayTV and TiVo can download scheduling info over an Ethernet connection (which is nice because this doesn't tie up your phone line).

If sharing your network connection with every PC in your home isn't enough for you, it's easy to add an 802.11b or 802.11g access point to your LAN so you can have wireless access anywhere in the house. You can also add a basic file server to store your music, photos, and movies for easy access from anywhere in the house! ■

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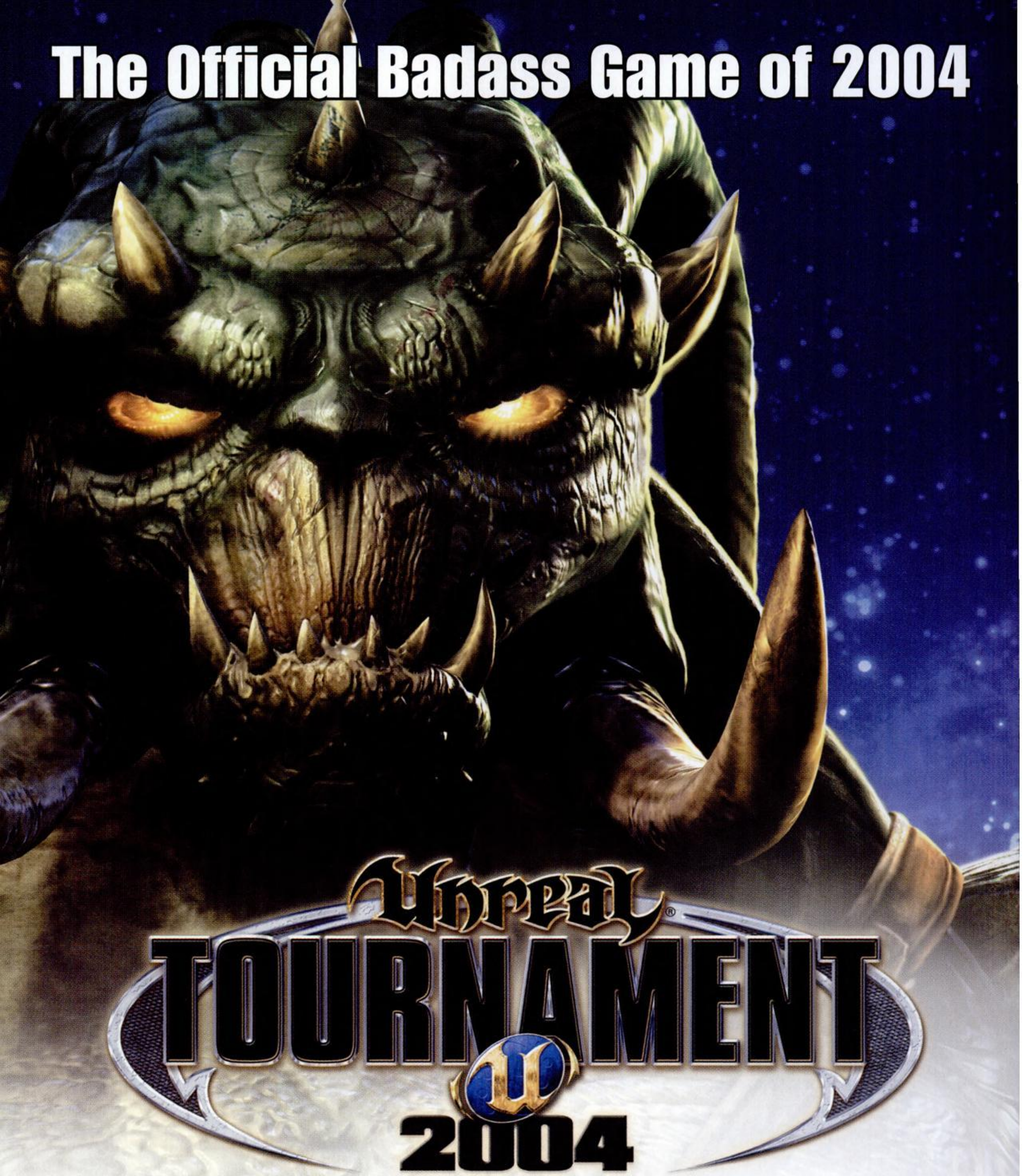
The Official Badass Game of 2004



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adrenalinevault.com

"they've unleashed a monster..."

5 out of 5 — Game of the Month

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GameSpy.com

9/10
"appeals to every online shooter fan..."
YAHOO! Games Domain

COMPUTER GAMES EDITOR'S CHOICE
EDITOR'S CHOICE
Gomputer Games.com

"more solid entertainment than the majority of what you'll find at the game store right now." **A**
UGO.com

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"The speed and polish of UT 2004 cannot be denied."

"We sincerely recommend this game..."
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93% *ActionTrip.com*

5/5 "...will have you hooked"
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"UT 2004 marks a stunning and welcome comeback for the Unreal franchise."

94% IGN.COM EDITORS' CHOICE AWARD
IGN.com

PC GAMER EDITORS' CHOICE
EDITORS' CHOICE
PC Gamer

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5/5 *frictionlessinsight.com*

"nothing even comes close..." **96/100**
IC-Games

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5 out of 5
GamePro

"No other multiplayer-focused action game has this much to offer." **9.4** **SUPERB**
GAMESPOT EDITORS' CHOICE AWARD
GameSpot.com

"UT 2004 is the complete package" *Play*

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ATARI

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Optimize XP for Multiplayer Mayhem

With just a few tweaks you can become even more of a force to be reckoned with in online games.

The battle is joined! You find yourself in war-torn France with a small squad of combat-hardened soldiers, seeking out Nazis while wading through the smoking ruins of a rustic village.

There's movement up ahead. A shot rings out and you race for cover as bullets zing past your head. There, ahead, is the assailant. He doesn't see you. You raise your rifle and aim just behind his ear.

And suddenly, he vanishes. A tenth of a second later, he's behind you, unloading lead into your sorry carcass. What is this, some sort of secret Nazi experiment in teleporting?

No, it's latency—the time between initiating an instruction, such as firing on the enemy, and its actual execution. It just ruined your game of *Call of Duty*. You check your stats and find that your ping has hit 550 milliseconds. The game stutters like an old movie in a bad projector.

Here are some tried and true methods for making your PC better equipped to handle the pressures of online gaming, and for helping to keep the latency monster at bay.

Hints for Every Occasion

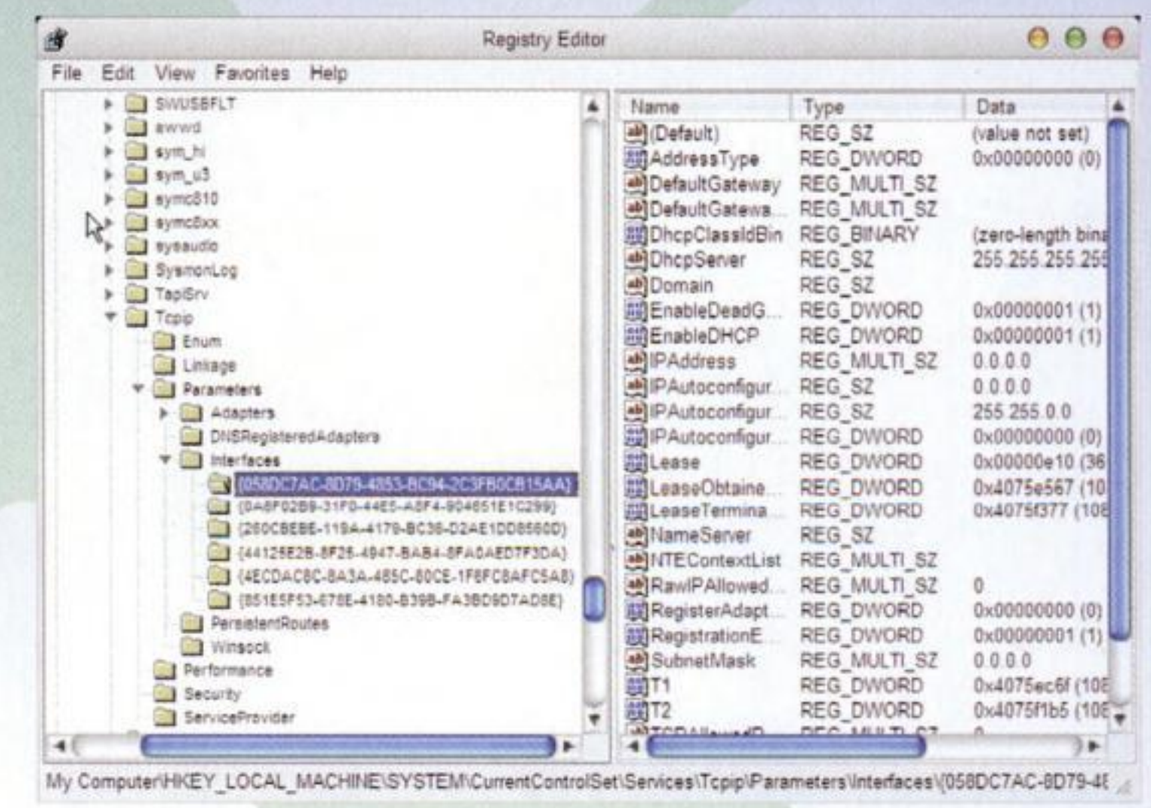
Find a Low-ping Server

It seems obvious. The one factor that will affect your multiplayer gaming performance more than anything else is your ping. Ping measures how long it takes a packet of data to travel to a server and back. It's further complicated by the packet's trip through your system's architecture. For instance, using a software-controlled modem (Winmodem) will result in higher pings compared with high-quality, hardware-controlled modems because software-controlled modems have to wait for processor time. The higher your ping is in relation to a given server, the more latency you'll experience.

When you're browsing for a server, sort the list by ping (you can usually do this by clicking the ping header at the top of the list). Find a server with a low ping, but don't trust it right away. Refresh it, if the game allows you to refresh a single server, or refresh the list, and do this two or three times. If the server's ping is consistently low, try logging on to it.

ARENA SERVERS
Servers: Internet
Game Type: All
Sort By: Ping Time
Show Full: on
Show Empty: on
Punkbuster: Enabled
LICENSE TO FRAG II · Q3CTF1 8/ 8 instaunl UDP 36 No
TOMMY Q3DM17 2/ 2 DM UDP 37 No
XTO |DM| Q3DM14 0/14 DM UDP 37 Yes
ILLIAD'S HOUSE Q3CTF3 8/ 8 CTF UDP 54 No
(RAW) CTF SERVER Q3CTF1 4/ 4 instagib UDP 65 No
=XR|= FFA Q3TOURNEY3 8/12 InstaUrt UDP 71 Yes
DALQUEST.NET FREEZE Q3DM3 1/24 freezedt UDP 71 Yes
GATT Q3DM17 1/ 8 alternat UDP 71 No
GONA HAVE ME SOME FU Q3DM17 0/16 excessiv UDP 71 No
MASTERCTF.COM RAILON Q3CTF1 14/16 instagib UDP 71 Yes
OCCOM'S Q3DM4 1/10 alliance UDP 71 No
131 of 2521 Arena Servers.
Press SPACE to stop
BACK
SPECIFY
CREATE

Careful selection of a true low-ping Quake III Arena server is half the battle.



Tweak the Registry to get the most out of your modem.

At the very beginning of the game, watch players for signs of latency. Check the player list and see if anybody there has pings of more than 400 milliseconds. If the server is overrun by high pingers, you're likely to see them freeze and jump around, and they'll be hard to target. When you find a server with a low ping populated by other players with sub-200 millisecond pings, you've found a winner.

Get Rid of the Router

More and more homes have multiple computers and small, often wireless LANs. In many cases, they share a broadband Internet connection with a router. This is a huge convenience: A single Internet connection can serve any number of computers in a household. However, for gaming, it's best to bypass the router and connect directly to the cable or DSL modem (see page 42 for more on how to share a network connection).

You see, the router adds another translation layer between your lean, mean gaming machine and the Internet, where all the servers reside. In our tests, the addition of a router increased pings by 10 to 20 milliseconds, a significant margin if you're a competitive player.

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Max Out Your PIPE

In Windows XP, there is a Registry setting you can tweak to squeeze better performance from your cable, DSL, ore even dial-up modem (for more on this, see page 51). It is the MTU (maximum transmission unit), which defines the largest packet size that can be transferred in a single frame.

To modify this setting, open your Registry editor (our normal word of caution applies here, see page 66 for Registry editing tips) by selecting Start\Run, typing "regedit," and hitting Enter. In the left pane, navigate to HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters\Interfaces\[Adapter ID]. Create a new DWORD value, or modify the existing value, called "MTU," and set it to equal the required MTU size in decimal.

Recommended Values

- 576 - Dial-up Connections
- 1492 - PPPoE Broadband Connections
- 1500 - Ethernet, DSL and Cable Broadband Connections

Restart Windows for the change to take effect. There's an excellent article on this process at **www.winguides.com/registry/display.php/280/.**

Tips for Quake III Arena Engine Games

Doom III and *Half-Life 2* may be on the horizon, but *Quake III Arena*-powered games are still alive and well online. Whatever your fix may be, *Quake III* itself or perhaps *Call of Duty*, here are some tweaks to make your online experience smoother.

Lag-O-Meter

The Lag-O-Meter is a splendid tool for gauging your Net performance and for detecting latency and dropped packets. Fire it up by bringing down the console (press the ~ key), typing **\cg_lagometer**, and hitting Enter. Be sure to include the preceding backslash, or you'll end up broadcasting the word "cg_lagometer" to everyone else on the server.

The Lag-O-Meter, located in the bottom right corner of the screen, consists of two important components. The top line indicates how synchronized your machine is to game world updates. Blue dots indicate that your computer is drawing frames at or better than the rate at which the server is sending updates. When yellow dots appear, it indicates that your graphics card is getting ahead of the server's world updates. This can cause signs of latency, like when enemies are there one second and gone the next. You can combat this through your snaps setting, which is discussed later.

The second line indicates how packets are being received from the server. Ideally, it should remain green, meaning that packets are arriving intact and on time. Yellow blips indicate late packets, and red blips mean packets are being dropped. You can optimize this somewhat by tweaking your rate setting, which is up next.

The Rate Command

The "rate" console command sets the maximum data rate in bytes per second at which the server will send to the client. Normally the server won't use the entire pipe, but this sets the cap.

If your client uses a dial-up connection, the rate should be relatively low—in the 3,000 to 4,000 range. Lowering the rate at the first sign of latency can smooth out the lag symptoms. It's a good practice to experiment with different rate settings while keeping an eye on the Lag-O-Meter; as the meter shows greater lag and more late or dropped packets, you should lower the rate. Adjust the rate by opening the console and typing \rate X, with X being the new value, and then hitting Enter.

Faster broadband connections benefit from a higher rate. Try setting it to something in the 25,000 range. Then prepare to level your enemies by popping railgun charges through their craniums.

There is not one perfect value for the rate variable that will work on every server. You'll have to experiment each time you log on, and if you stay on the same server for a long time, you may have to fiddle with it at regular intervals.

The Snaps Command

In earlier *Quake* games, the rate at which a client received updates depended on its frame rate, giving people with faster machines or more powerful graphics cards an advantage. *Quake III Arena* introduced a new architecture, updating the world in accordance with the "snaps" variable. The snaps setting tells how many world updates are received from the server per second.

Utilize the snaps command by opening the console and typing **\snaps** and hitting Enter. This will show you your current snaps setting. Enter \snaps followed by a number (for example: **\snaps 30**) to change the value.

Normally, the snaps default setting of 20 is fine. If you wish to experiment, the rule of thumb is that the faster your Internet connection, the higher your snaps setting should be. Consider keeping it around 20 with a 56K dial-up connection, and 30 to 40 if your PC is fitted with a broadband connection.

Also, use the Lag-O-Meter to help you find your ideal snaps setting. Depending on Internet traffic and lag, you might adjust snaps several times in one play session. When the Lag-O-Meter starts to show red lines (dropped packets) on its bottom graph, you might try lowering the snaps settings. Thus, if the snaps setting is 35 and the Lag-O-Meter starts filling up with red bars, lower the snaps variable to 30 or 25.

The Lag-O-Meter in the bottom right corner gives you a clear indication of how well your current connection is working.

Use the "snaps" command in Return to Castle Wolfenstein *to tweak world update frequency.*

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Tips for Half-Life Engine Games

Besides the actual *Half-Life* game, the Valve classic is the subject of what may be the most popular game mods ever: *Team Fortress Classic, Day of Defeat,* and *Counter-Strike*. None of these or other mods stray too far from the core code of the *Half-Life* engine, so net play tweaks that work on one will likely work on all three.

As is the case with *Quake III Arena*, you enter commands at the console. If you're using Valve's Steam service, the console is accessed by simply pressing the ~ key in-game. If you're not using Steam, you have to add the -console switch to your *Half-Life* icon's property sheet. Right-click your *Half-Life* icon on the desktop or in the Start menu, select Properties, and at the end of the Target text (outside the quotes), type **`-console`**. Then launch *Half-Life* normally; you can now access the console in-game with the ~ key.

The Netgraph

One of the most useful tools to monitor your network performance and determine the effectiveness of any optimization tweaks, is the Netgraph. Start the netgraph by opening the console and typing **`NET_GRAPH X`**, where X is 1 for the standard netgraph, 2 for an enhanced netgraph, or 3 for a small, abbreviated version of the netgraph.

You can tweak the size and placement of the netgraph. In the console, type **`NET_GRAPHWIDTH X`** to adjust its width (default is 192) and **`NET_GRAPHHEIGHT X`** to tweak its height (default is 64). Type **`NET_GRAPHPOS X`** to place the graph where you wish it to appear on your screen: substitute X with 1 for the bottom right, 2 for the bottom center, or 3 for the bottom left.

The graph shows several details: the frame rate in frames per second, the current latency in milliseconds, in and out packet sizes in bytes, in and out data rates in kilobytes per second, and more. The graph portion itself shows latency through the height of the green line, and red vertical lines show dropped packets. The very bottom graphs how quickly the client is rendering frames. Dropped packets and infrequent server updates will cause the client to extrapolate data, represented by yellow, orange, and red appearing in the graph. When the graph starts to get colorful, the game will become choppy.

The cl_rate Command

This is similar to the *Quake III* engine "rate" variable described earlier. It has to do with data transmission from the game server in bytes per second. You adjust the rate by opening the console and typing **`cl_rate X`**, with X being the new value.

Slow connections should get lower rates. With a modem connection, you'll probably want the cl_rate to hover around the 3000 to 4000 range. Use the netgraph to watch for signs of latency, and lower the cl_rate by increments of 100 or 200 at a time to smooth out the connection. Experiment with different rate settings, using the netgraph to help you out; as it shows greater lag, late packets, and dropped packets, you should lower the rate.

If your client has a broadband connection to the Internet and the server you're playing on has a low ping, try increasing the cl_rate to 10,000 or more, and start the hunt.

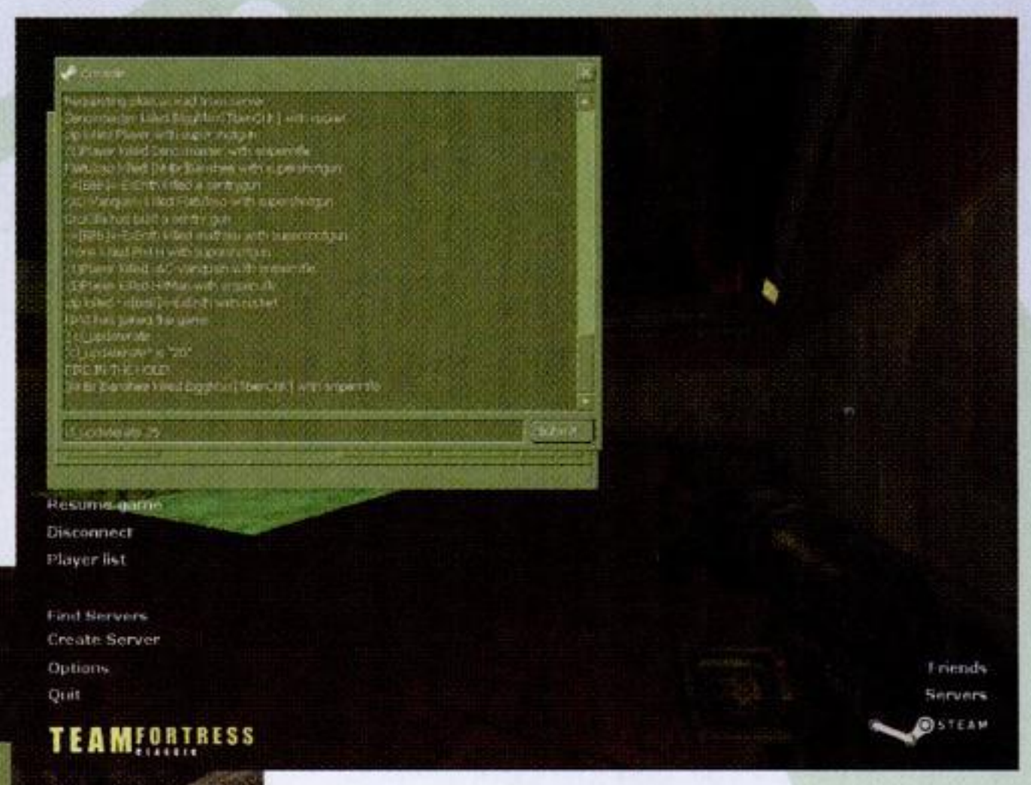
The cl_cmdrate and cl_updaterate Commands

The console commands "cl_cmdrate" and "cl_updaterate" can be used in conjunction with the netgraph to streamline Internet gaming.

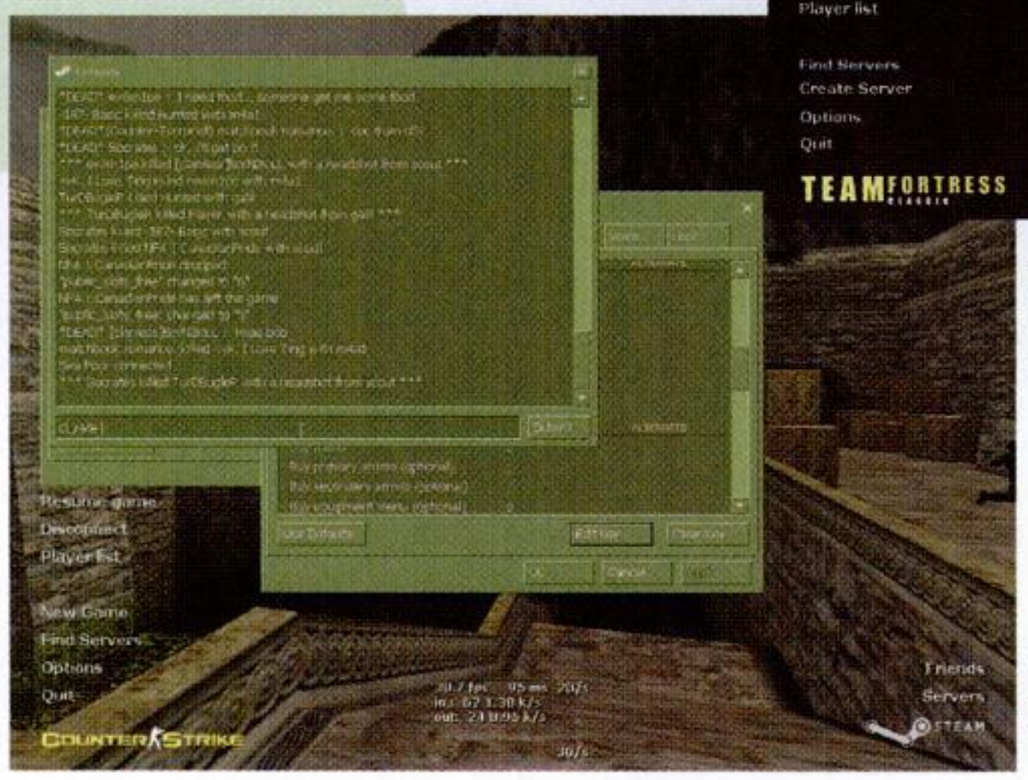
The first command, cl_cmdrate, determines the maximum number of packets that get sent to the game's server each second. By default, the cl_cmdrate is set at 30, which is fine for 56K modems with connections higher than 50Kbps. If your connection speed is slower and you start to experience lag, try lowering the value by opening the console and entering cl_cmdrate X. Set X at 30 and work your way down to 20. Alternately, users of broadband connections can expect smoother play by increasing the rate to 35 or 40.

The cl_updaterate is the opposite of the cl_cmdrate. It indicates the maximum number of packets that get sent from the server to the client per second. Its default setting is 20. That should be considered the minimum setting; users of dial-up connections won't likely benefit from lowering the rate. If you have a broadband connection, consider raising it to 30 or 40 by opening the console and entering cl_updaterate X, with X being the new setting.

Experiment with these variables to find the most silky-smooth settings possible. ■



We used "cl_updaterate" in Team Fortress Classic *to raise the rate for our fast cable modem.*



You can use the "rate" command in Day of Defeat *to iron out some lag.*

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Give Dial-up a Kick in the Pants

Just because you use a dial-up connection doesn't mean that you're left out of the speed-tweaking party. Use these tips to shift gears and get your modem moving.

Someday, broadband Internet connections will become as ubiquitous as the old fashioned dial-up connections of yesteryear. Until then, most online surfers will continue to get their Internet fix through a modem and a phone line, which means World Wide Web translates to "World Wide Wait" for many of you.

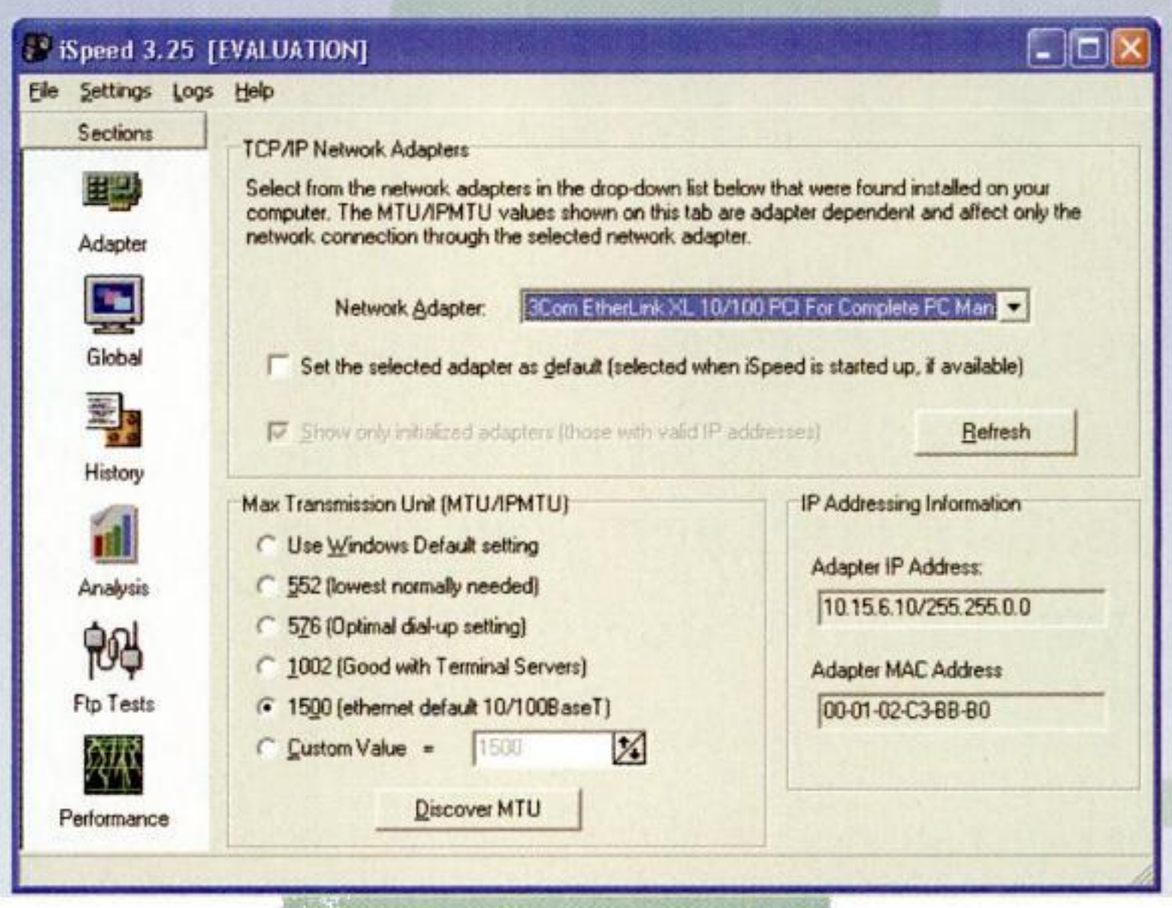
Still, all hope's not lost: Here are a few tricks you can use to give your dial-up connection a speed boost today.

Tweak those settings

One of the easiest things you can do to improve your connection is download and install the latest drivers and firmware for your modem; these usually can be found on the manufacturer's website, and may offer improved performance and features. You also can find optimized initialization strings for your modem that may give you a performance boost; check with your modem's manufacturer for more information.

Now that you've gotten your modem software up to date, it's time to tweak your network settings. There are several well-documented hacks that can help make your connection more efficient. They mostly deal with modifying various settings to your TCP/IP stack and Registry, and can be found online at numerous websites. Techspot.com's Windows XP Modem Tweak Guide is particularly informative and can be found at **www.techspot.com/tweaks/winxp_modem/index.shtml**.

There are also several programs that will automatically change these settings for you if you don't feel comfortable fiddling with your PC, such as HMS Software's *iSpeed*. You can download a trial version at **www.hms.com/ispeed.asp**.


iSpeed 3.25 [EVALUATION]
File Settings Logs Help
Sections
Adapter
Global
History
Analysis
Ftp Tests
Performance
TCP/IP Network Adapters
Select from the network adapters in the drop-down list below that were found installed on your computer. The MTU/IPMTU values shown on this tab are adapter dependent and affect only the network connection through the selected network adapter.
Network Adapter:
3Com EtherLink XL 10/100 PCI For Complete PC Man
Set the selected adapter as default (selected when iSpeed is started up, if available)
Show only initialized adapters (those with valid IP addresses)
Refresh
Max Transmission Unit (MTU/IPMTU)
Use Windows Default setting
552 (lowest normally needed)
576 (Optimal dial-up setting)
1002 (Good with Terminal Servers)
1500 (ethernet default 10/100BaseT)
Custom Value =
1500
Discover MTU
IP Addressing Information
Adapter IP Address:
10.15.6.10/255.255.0.0
Adapter MAC Address
00-01-02-C3-BB-B0

Programs such as HMS Software's iSpeed *can automatically tweak your settings to maximize your dial-up connection*

Your best bet is to call the tech support lines for all the ISPs offering dial-up service in your area.

While a bonded connection can be significantly faster than standard dial-up, it can cost as much—or more—than broadband when you factor in the second phone line and second dial-up connection charge for your ISP. However, if no other broadband technologies are available in your area, it could be worth the expense. ■

Download Managers

A useful tool that every dial-up user should keep on their hard drive is a download manager. These handy programs are useful for their ability to resume interrupted downloads, an important feature when downloading large files over a slow connection.

Download managers such as Headlight Software's GetRight *can be invaluable to the dial-up user for their ability to resume interrupted downloads*

Bonding...modem bonding

You may be able to *really* kick your dial-up into high gear with modem bonding, which is a technique that melds two separate dial-up connections into one, delivering a maximum connection speed that is equal to the connection speed of the two modems combined. This means that two 56k modems can be bonded together to produce a connection capable of delivering 112k of throughput.

First, you'll need to purchase and install two separate modems. Note that the modems don't need to be the same speed or from the same manufacturer. You can also mix an internal modem with an external one if you like. The only other things you will need are two separate phone lines to connect the modems to, and an ISP that allows for bonded connections, which can be very tough to find.

Internet Accelerators

Many major ISPs now offer free "accelerator" technology that they claim will allow you to surf the Net at speeds up to five times faster than standard dial-up. The latest version of the AOL software is called *AOL Top Speed*, EarthLink offers the aptly named *EarthLink Accelerator* and NetZero offers *NetZero Hi-Speed Internet*. In each case, the technology uses compression to reduce the time it takes to load a web page's graphics and text, essentially trading image quality for speed. It also uses caching to store elements of frequently visited sites in order to reduce load times.

While accelerator technology won't actually make your physical connection any faster, it can make it *appear* faster, which could translate into a more enjoyable online experience.

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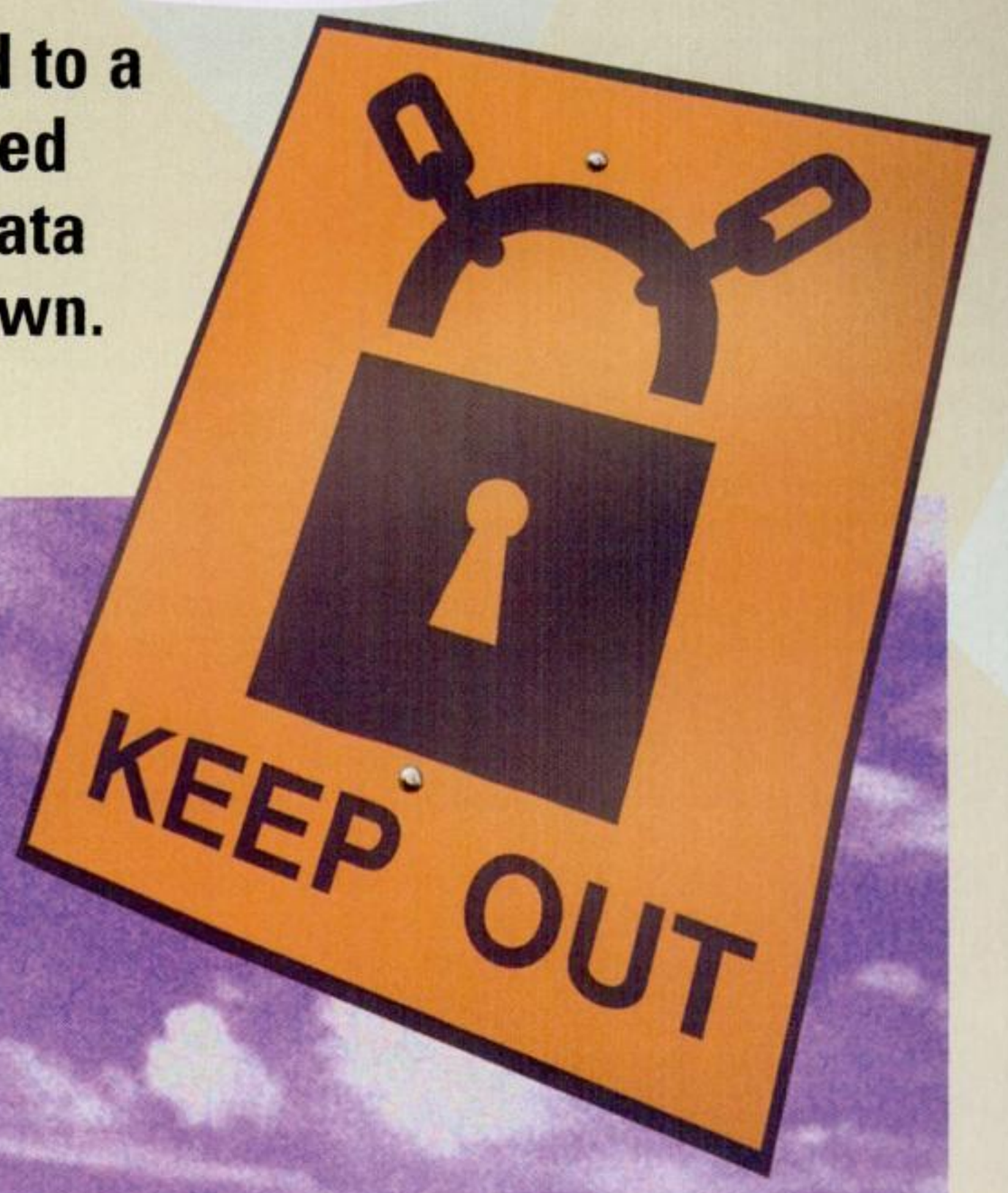
Turn Your PC Into Fort Knox

Windows XP Professional edition, and to a lesser extent, Home edition, is equipped with powerful features to keep your data safe. We show you how to lock XP down.



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Late at night, while you are snug under your 600-thread-count sheets, someone—across the street, or perhaps in Hong Kong—may be wide awake and intent on breaking into your computer. Why? Who knows, and it really doesn't matter, does it? What does matter is that all of your data—your financial files, your email, the first chapter of that novel that's going to win you the Pulitzer Prize—are all sitting there, exposed and unguarded.

Countless would-be "hackers" are out there trying to expose the latest Windows XP security vulnerability, such as a heap-overflow bug that could allow them to author malicious code to execute on *your* machine. This code could take the form of a "Trojan horse" file, which could give a hacker full control of your PC's operating system via the Internet. Or maybe it's a rogue virus, spread through email, which could be deleting critical Windows system files on your machine as you snooze. Worse, someone could access your data, erase critical files, wipe out your hard drive, or use your computer as part of an attack on someone else's web site or service—just for "fun," and all while you're sound asleep.

Not on our watch! These issues may keep *us* up at night, as we strategize ways to thwart the next would-be hacker out there. However, you can continue to sleep soundly with the peace of mind provided in the following pages. We're going to make you aware of WinXP's security vulnerabilities, and provide you with all the vital information you need to safeguard your PC and lock it down as tight as Fort Knox.

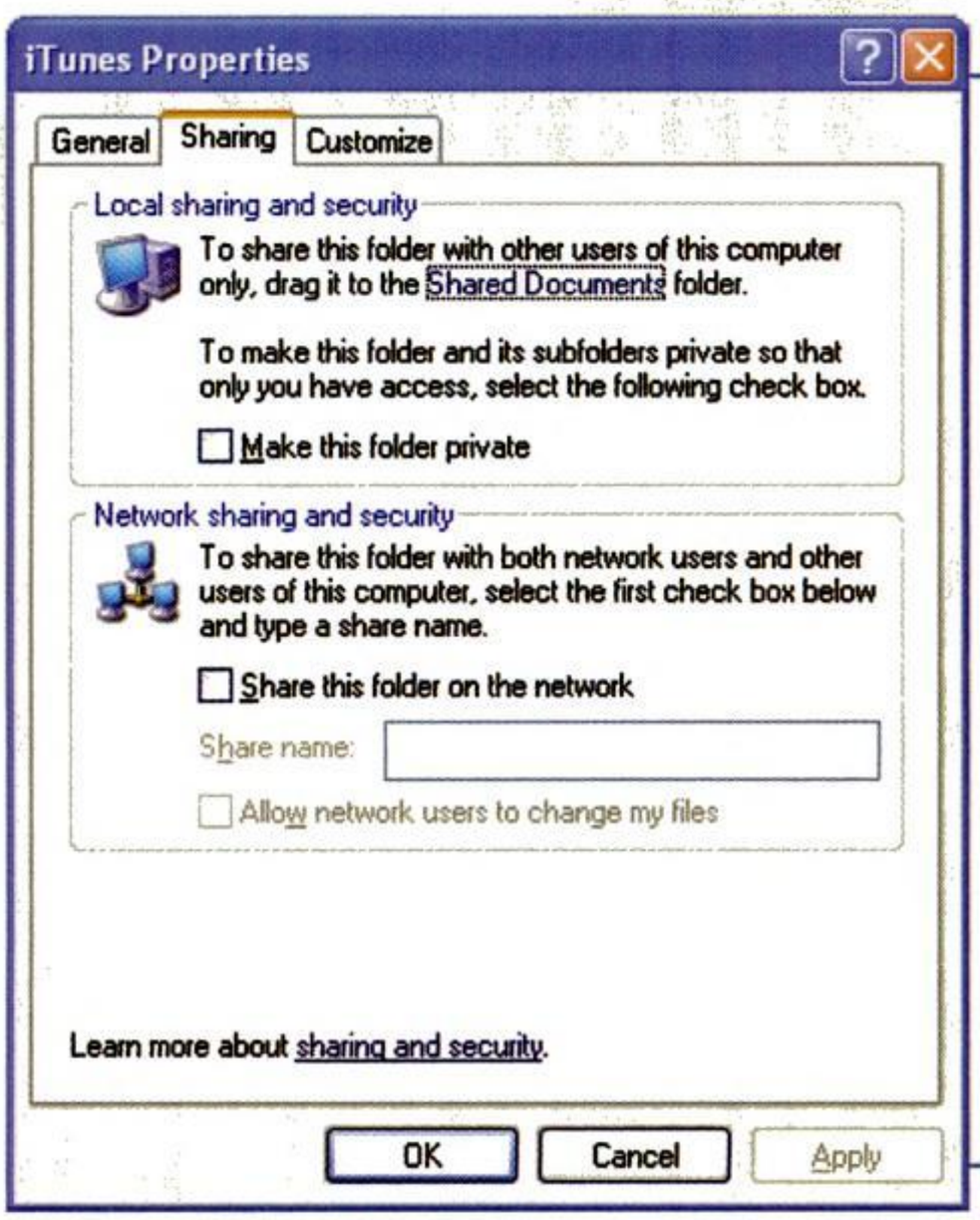
Open Windows Invite Intruders

The Windows series of operating systems, up to and including WinXP, are huge, far-reaching programs. As such, they're incredibly complex, comprised of thousands of modules and millions of lines of code. This is a lot of code to keep track of, an almost insurmountable task for Windows programmers to dream of every possible avenue of attack a hacker might take—particularly before a new version of the OS is launched. Therefore, as is the case with any program of its magnitude, each new version of Windows is a fertile breeding ground for bugs, which may include errors of omission, unpolished code, or simple lack of forethought. XP is no exception. Because of its vast installed base, Windows is also the most targeted operating system for virus writers, as it represents the largest billboard for them to broadcast their skills to the hacking "underworld."

As we've said, who really knows what motivates hackers? It might just be the novelty of pulling off annoying pranks, like defacing web sites, or the thrill of stealing the code of a major game before

Frankenstein XP

Windows XP inherited stability—and its core "engine" code—from Microsoft's more robust commercial operating systems: Windows NT Workstation and Windows 2000. Folder and file-encryption security was culled from Windows NT. XP's simplified folder view system can be traced back to Windows 95, and its window and cursor animations evolved from Windows 98. Last, but not least, XP's digital-media tools and the potentially life-saving System Restore utility were plucked from the much maligned, and short-lived, Windows ME.


iTunes Properties
General
Sharing
Customize
Local sharing and security
To share this folder with other users of this computer only, drag it to the Shared Documents folder.
To make this folder and its subfolders private so that only you have access, select the following check box.
Make this folder private
Network sharing and security
To share this folder with both network users and other users of this computer, select the first check box below and type a share name.
Share this folder on the network
Share name:
Allow network users to change my files
Learn more about sharing and security.
OK
Cancel
Apply

Make "Private" Folders Really Private!

Windows XP makes some pretty bold assumptions when you first install it. For instance, it automatically installs a bunch of *personal* folders for each user, but it doesn't bother to hide them from the other users. You can, and probably should, do this yourself. The tools are there!

However, you can only make folders contained in your personal profile private. These folders include your My Documents folder and anything within it, Desktop, Start Menu, Cookies, and Favorites—or any custom folder you create within your My Documents folder. Make them private by navigating to the file you want to privatize, such as My Pictures. (By default, you'll find most of them in a path like C:\Documents and Settings\<username>\My Documents\My Pictures.) Then, right-click the My Pictures folder, choose Properties, click the Sharing tab, and check the "Make this folder private" checkbox. From that point on, only people logged in to your user account will have access to those folders.

You can make your personal profile folders private, so that users logged in under other profiles can't access them.

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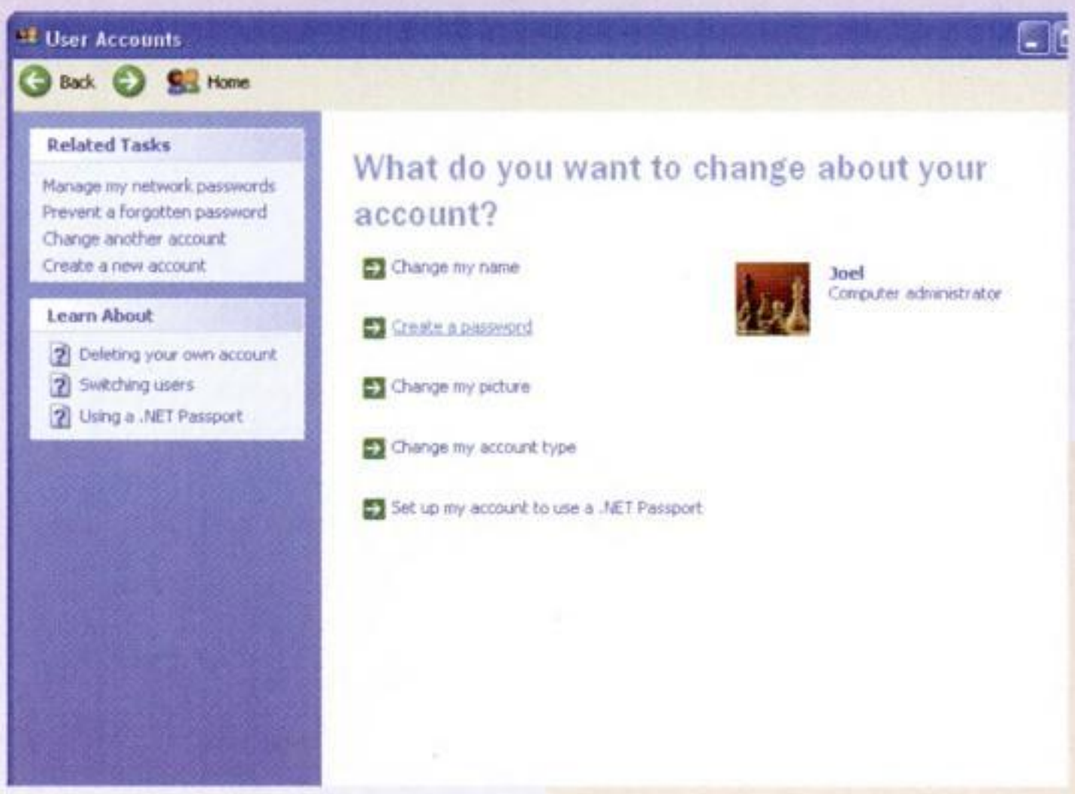


Password-protect user accounts in Windows XP through the Control Panel/User Accounts applet.

option to password-protect the PC). Just don't forget this password. Write it down, and keep it somewhere safe. Next, password-protect XP's screensaver through the Display control panel. Use passwords for all of the user accounts on the PC. Configure these through Control Panel/User Accounts. Click on an account, each of which is accompanied by an icon in the bottom of the window. Then, on the next screen, click "Create a password," and follow the prompts.

it's published, as was the case with Valve Software's *Half-Life 2*.

Last September, hackers exploited a security hole in *Microsoft Outlook* to gain access to Valve's internal network. They then swiped the source code to the hotly awaited *Half-Life 2*, which they compiled and leaked onto the Internet. Rumors still abound that this attack was a direct cause of the delay of *Half-Life 2's* release.

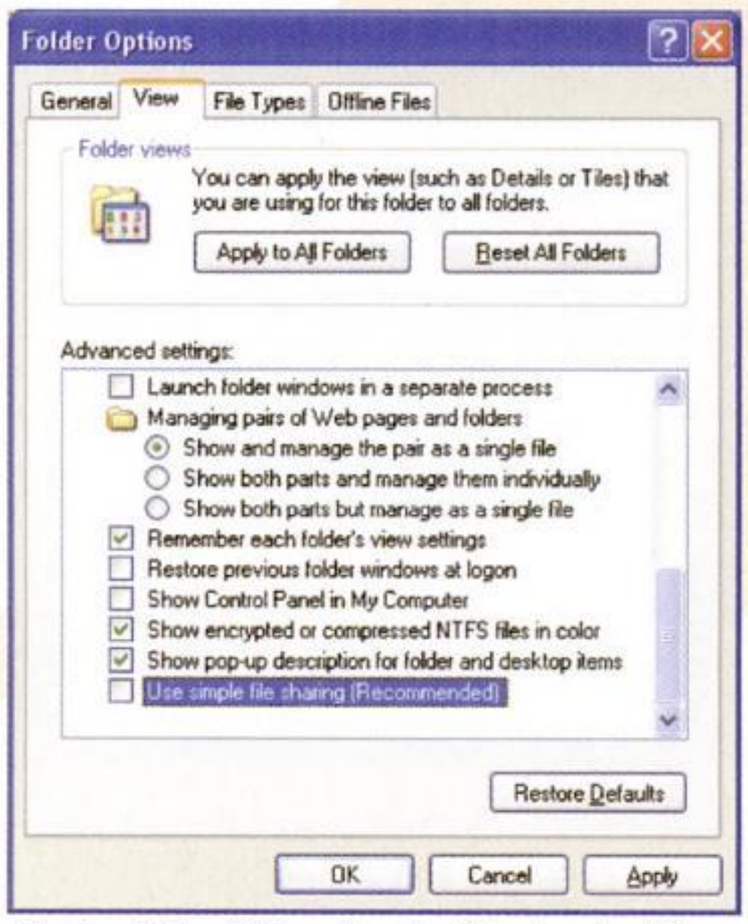
Typically, for each new "open window" hackers find to exploit, such as the *Outlook* back door noted above, Microsoft quickly responds with a patch to slam it shut. These fixes are made available via the Windows Update process. So we don't need to tell you this, right? But we will anyway, again: *Keep WindowsXP up to date!* Run Windows Update at least weekly. (See "Maintain a Healthy OS" on page 32 for more on this).

Security Begins at Home

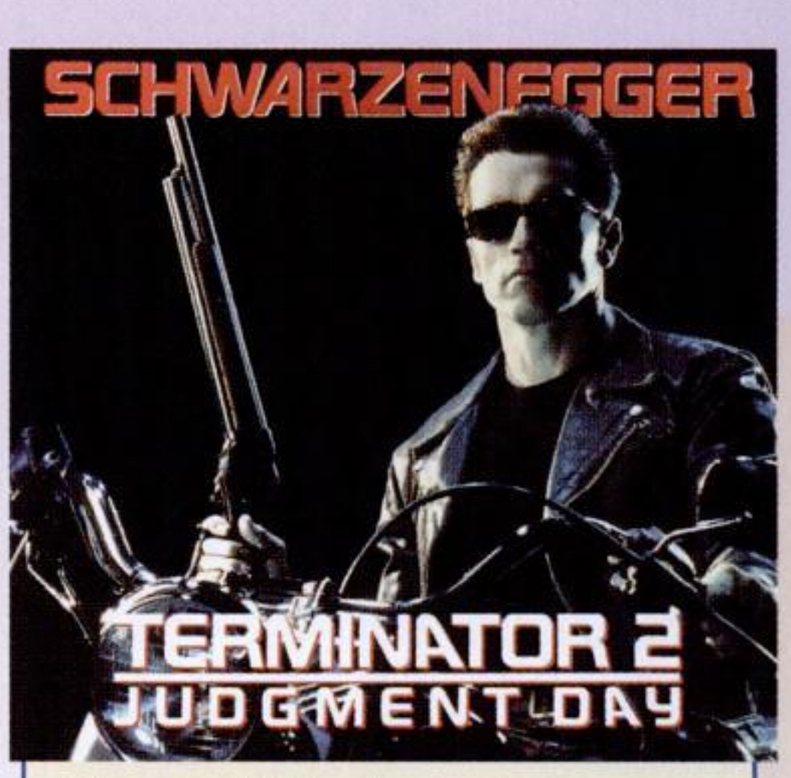
Of course, the latest security patch won't help you much if your PC's physical location makes it accessible to others when you're not around and you haven't set up safeguards. The easiest way, by far, for someone to steal information from or harm a PC is to sit down at the keyboard and go exploring, unimpeded. This may seem obvious, but keep your computer room secure. Lock the computer room door, if possible. Password-protect the computer's BIOS by entering the CMOS set-up program and configuring an administrator password. (The process depends upon the machine you're using, but look for a prompt to hit a key—typically "Delete," "F5," or "F2"—during the initial boot process, then navigate through the set-up program to find an

Disable Simple File-Sharing

Simple file-sharing allows anyone to access your folders through the Guest account. Disabling it forces people on a network or that share your machine to authenticate, by supplying a password for an account controlled by a server, before they're able to access any shared directories and files on the network. If you're using Windows XP Professional, go to the Start button and launch My Computer. Click the Tools menu and select Folder Options. Click the View tab, look in the list labeled "Advances," and scroll down to the bottom. The last item is "Use simple file sharing." Clear


Folder Options
General
View
File Types
Offline Files
Folder views
You can apply the view (such as Details or Tiles) that you are using for this folder to all folders.
Apply to All Folders
Reset All Folders
Advanced settings:
Launch folder windows in a separate process
Managing pairs of Web pages and folders
Show and manage the pair as a single file
Show both parts and manage them individually
Show both parts but manage as a single file
Remember each folder's view settings
Restore previous folder windows at logon
Show Control Panel in My Computer
Show encrypted or compressed NTFS files in color
Show pop-up description for folder and desktop items
Use simple file sharing (Recommended)
Restore Defaults
OK
Cancel
Apply

Uncheck the "Use simple file-sharing" box in XP Pro to prevent just any network user from accessing your shared folders.



Give your PC Terminator-class protection with a smart password scheme.

Passwords R' Us

It's not worth going through the trouble of password-protecting your BIOS, user accounts, personal folders, and encrypted files if you don't put some serious thought into the process. There are a lot of passwords here to remember, so a system is key—and no, using the name of each of your family pets or ex-wives isn't good enough. The passwords you select *must* be complex enough that no one will ever be able to guess them, but simple enough that you'll be able to remember them.

Here's a good strategy: Build a password system from things you remember by heart, such as a quote from your favorite movie. Take the phrase "Hasta la vista baby," from *Terminator 2*, for example. Drop everything but the first letter of each word, and add a number for extra security, and you've got "Hlv1b." Even better would be "Hlv1b#3"—even if a hacker knows you're a huge fan of the *Terminator* series, this would be near impossible to guess. The "1" and "#3" are also mnemonic clues. The "1" represents the first letter of Arnold's first name, and the "#3" stand for the number of *Terminator* movies. Pretty clever, eh?

Still, keeping track of multiple passwords is tough. Make sure to memorize the one you need to boot, and use it to also protect an *encrypted* file on your hard drive, or better still, on a floppy you keep in a secure location away from your PC, that lists the rest of your passwords for reference, should you forget 'em.

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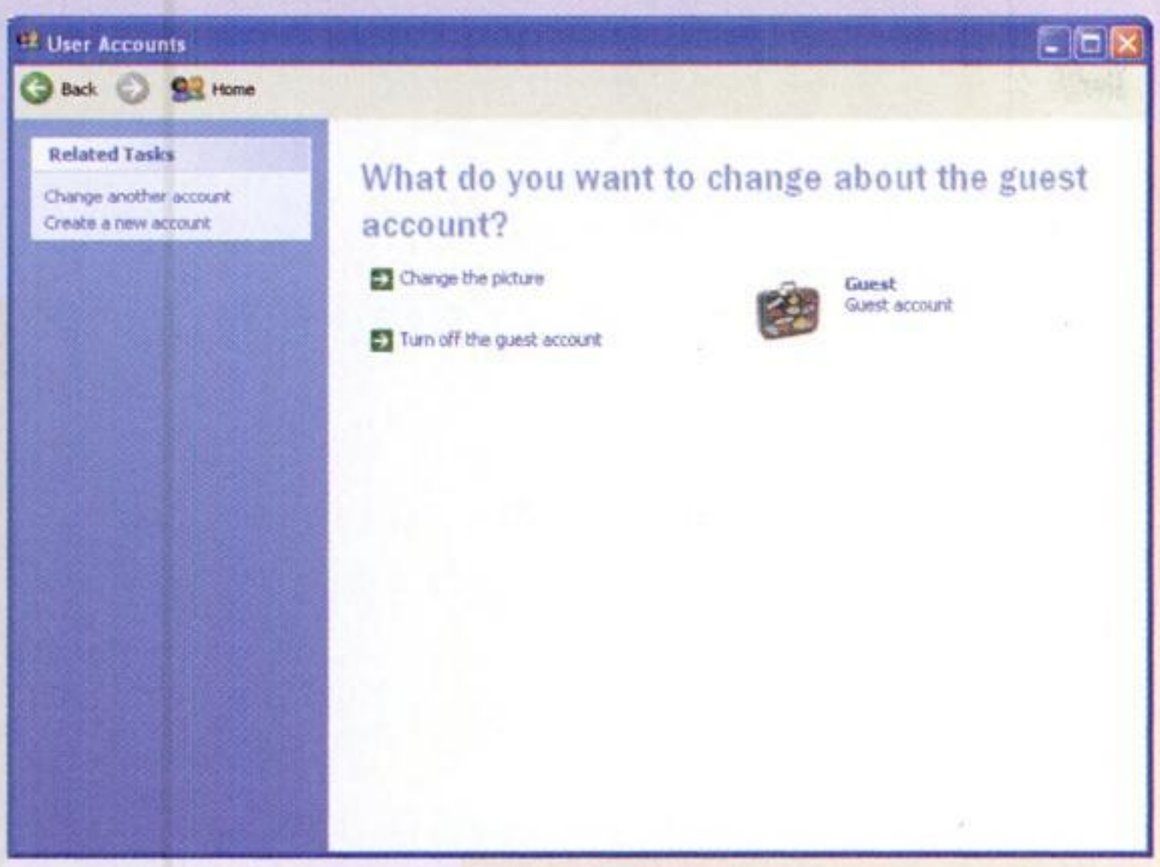
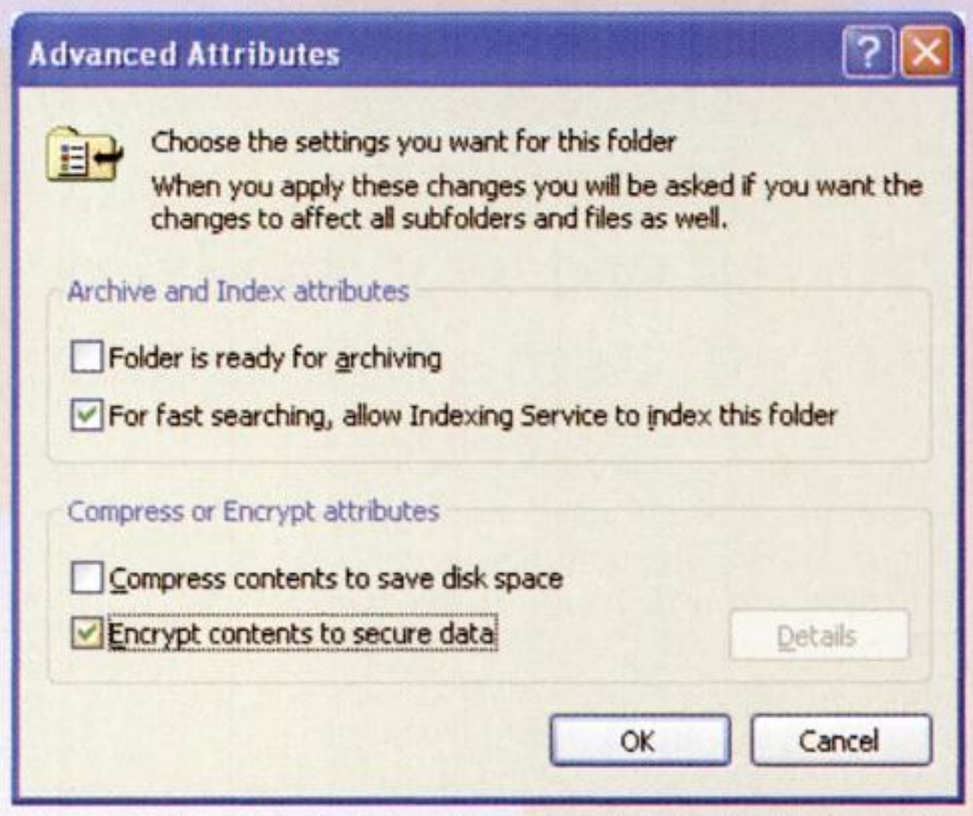


Windows XP allows you to switch off the Guest account to prevent indiscriminate local access to your PC.


Advanced Attributes
Choose the settings you want for this folder
When you apply these changes you will be asked if you want the changes to affect all subfolders and files as well.
Archive and Index attributes
Folder is ready for archiving
For fast searching, allow Indexing Service to index this folder
Compress or Encrypt attributes
Compress contents to save disk space
Encrypt contents to secure data
Details
OK
Cancel

Encrypt files and folders to prevent data theft. Even if your hard drive is physically stolen, thieves can't access your data without the proper keys!

the checkbox. (Note that this feature isn't available in Windows XP Home edition.)

Kill the Guest Account

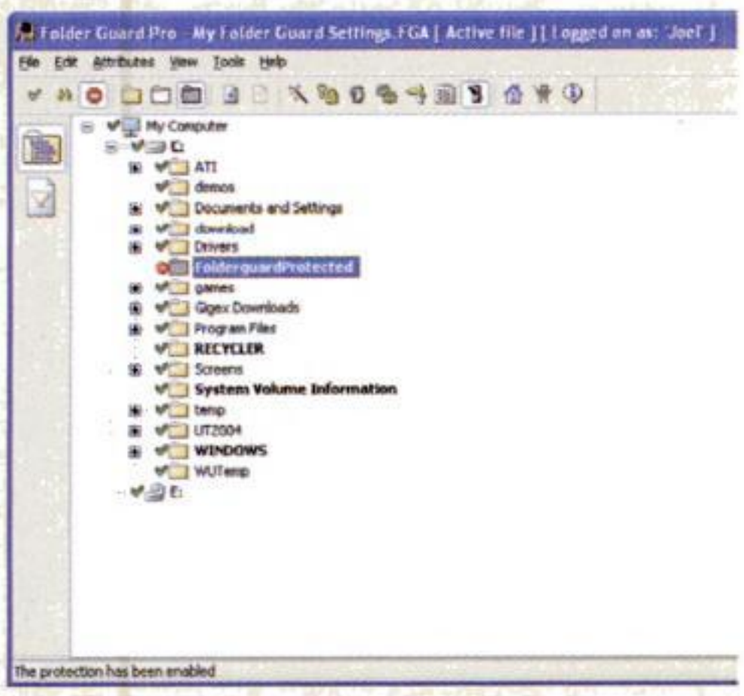
The Guest account is a hacker's welcome mat, and it's enabled by default in both versions of XP. Its purpose is to simplify the sharing process in a simple network environment. Unless you're absolutely sure that your network is secure from any sort of intrusion—and, naturally, if your PC is not on a network—you should disable the Guest account immediately after installing XP. You can turn off the Guest account through Control Panel/User accounts. Note, however, that unless you're using XP Professional as part of a domain, turning off the Guest account with this method only removes it from the local-logon and fast user-switching options; the Guest account remains active to network users.

Ban Remote Desktop

Remote Desktop is a feature specific to XP Professional that allows users to connect to a computer remotely and use it as if they were sitting in the chair in front of it—similar to applications like *PC Anywhere*. It's off by default, but verify that nobody turns it on by heading to Control Panel/System and clicking on the Remote tab. Be sure the checkbox next to the second heading is clear.

Enable Encrypted File System

Windows XP Professional contains a powerful encryption layer, called EFS (for Encrypted File System), that you can apply to files and folders. Simply select a file or folder, right-click on it, and select Properties. In the General tab, click Advanced. Check the "Encrypt contents to secure data" checkbox. Note that Windows XP Home edition does not offer EFS, and Windows XP Professional can only encrypt files and folders stored on NTFS partitions. If you encrypt a folder with data already in it, Windows will ask if you wish to encrypt the entire contents of the folder. Windows encryption works by giving each file its own private key, while the machine has a public key. The keys have to match for the operating system to decrypt the file. On the local machine, encryption is transparent to the user. You can even store encrypted files, which would only be accessible to your computer, on remote servers. ■



Folder Guard *from WinAbility lets you hide or restrict access to files, folders and Windows XP resources.*

Protect Private Files with Folder Guard

If you want to beef up the security and privacy of various files, folders, and other resources, WinAbility's *Folder Guard* is a solid choice. This handy app puts you in control of exactly who can see what on *your* PC. (Check it out, it's on the disc!)

Folder Guard goes further than XP's own security tools with a suite of powerful options, such as the ability to hide folders completely from others when someone else uses your machine. It's as if the folders aren't even there! It's possible to lock files and folders with a master password, preventing others from accessing or changing them. If you don't want the kids accidentally changing hardware or system settings, *Folder Guard* allows you to restrict access to the Control Panel, and to prevent others from formatting drives. You can even restrict access to removable drives and prevent other users of your machine from downloading stuff through *Internet Explorer.*

Folder Guard Standard v.6.0 for Windows9x and XP Home Edition runs $39.95; the *Professional* version, compatible with XP Pro, costs $59.95. *Folder Guard Lite* v.2.7 can hide and password-protect individual folders, which isn't a bad deal for $24.95.

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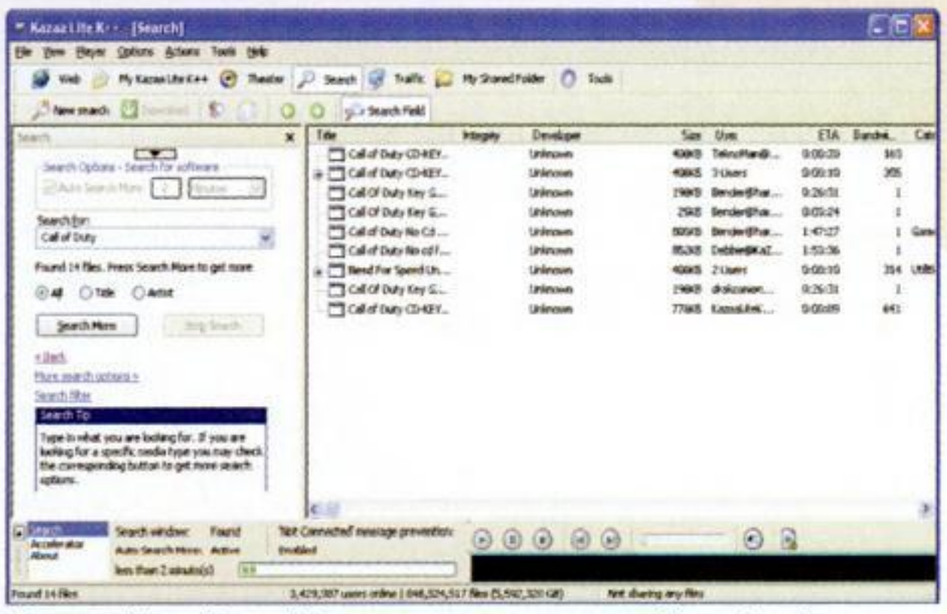
All About Viruses

Being proactive and taking preventative measures can help keep yourself and your family free of nasty viruses, and the same's true for your PC. Here's how to keep XP inoculated.

A computer virus is a program designed to spread copies of itself onto multiple computers by infecting files or system areas of hard drives and floppy disks. Nasty viruses also can contain "payloads" in the form of malicious code that may alter, corrupt or delete files on a hard drive and make them inaccessible to you. Viruses typically try to operate invisibly, unbeknownst to you, until it's too late and the damage is done.



Kazaa Lite K++, *like any peer-to-peer file- sharing program, can't guarantee that the programs you download aren't laden with viruses. Use them at your own risk.*

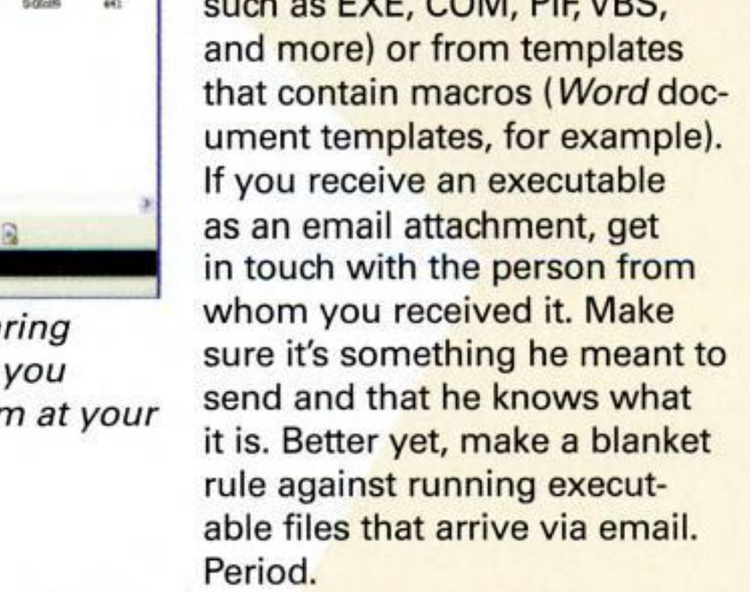
And viruses aren't the only source of "colds" your PC can catch. You should watch out for two other infectious beasts: Worms (code that exists simply to replicate itself, not to damage files) and Trojan Horses (secret programs that allow access to a system through a remote connection). Worms are the least offensive of this terrible trio. Trojans, meanwhile, are in a different class. They're often spread the same way as viruses and worms (through email attachments or downloaded executables), but they require human intervention to be truly destructive.

The Never-Do List

In this day and age, there's really no reason anyone should fall prey to a virus, especially an executable virus. Viruses are programs, and programs can't execute themselves. They require some form of human activity to get them started, be it booting off of an infected floppy disk or running an email attachment from an unknown source.

Protect your PC from yourself and *never* do the following:

- **Never Boot from a Floppy Diskette** without scanning it for viruses first. Viruses that reside in system areas of floppy disks can lie dormant for years in your desk, unused, only to wake up and infect your system when you boot off the diskette it calls home.
- **Don't Run Email-Attached Executables** without verifying their source and scanning them for viruses first. Viruses can't infect media files (AVIs, MPEGs, TIFs, JPGs, and so on), but they assault your PC as part of an executable file (file extensions such as EXE, COM, PIF, VBS, and more) or from templates that contain macros (*Word* document templates, for example). If you receive an executable as an email attachment, get in touch with the person from whom you received it. Make sure it's something he meant to send and that he knows what it is. Better yet, make a blanket rule against running executable files that arrive via email. Period.
- **Don't Download Pirated Software.** Downloading "safe" programs isn't usually a problem; rarely are product demos, freeware programs or authorized program updates infected. However, hackers love to plant viruses and Trojans in pirated "warez," which is just one of the many reasons to stay away from them. By association, running file-sharing programs such as *Kazaa*, can be extremely risky as well. Use them at your own risk.



Norton AntiVirus *is one of the best antivirus programs available. Here's a look at its easy-to-use Options screen.*

Use an Antivirus Program

It's absolutely vital, given the sheer number of viruses in existence, not to mention the new ones being bred daily, to get yourself a copy of Norton *AntiVirus*, McAfee *VirusScan*, or—at the very least—any one of a number of freeware antivirus programs (such as *AntiVir*, which is on the disc). See our "Maintain a Healthy OS" story, page 32, for more on antivirus programs. ■

You're Infected!

If you receive a run32dll.exe error when you open Control Panel, your *run32dll.exe* file is corrupt or you've got a virus. To correct the error, begin by ensuring that you have an up-to-date virus-checker and perform a full scan of your system. Next, to restore *run32dll.exe*, insert your XP or installation CD-ROM, then go to a command prompt and type "`expand <CD-ROM:>\i386\rundll32.ex_ %Systemroot%\rundll32.exe`" to extract the file to your system. Restart your machine.

If your PC keeps rebooting with the message "This system is being shut down in 60 seconds by NT Authority/System due to an interrupted Remote Procedure Call (RPC)" you've been wormed. This error is a symptom of the highly contagious *MSBlaster* (LoveSan) worm. Download and install the patch, which is available on Microsoft's Web site at www.microsoft.com/security/security_bulletins/ms03-039.asp. Next, remove running versions of the virus from your PC: Open Task Manager, select the Processes tab, then click End Process for all of the following processes: *MSBLAST.EXE*, *PENIS32.EXE*, and *TEEKIDS.EXE*, which are known variants of the Blaster worm.

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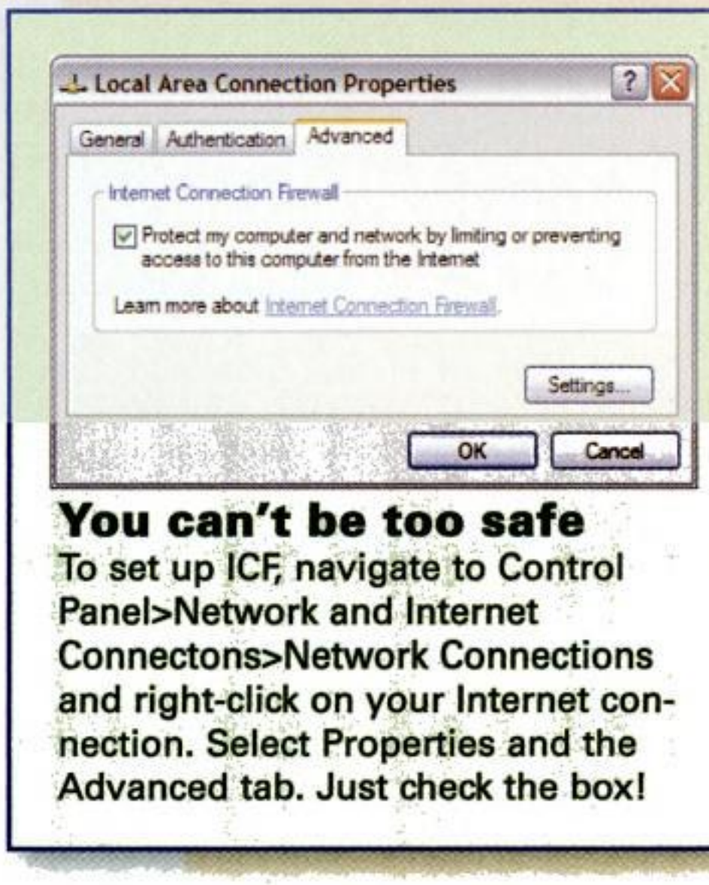
All About Firewalls

Protecting your PC against viruses is only half the battle. Install a firewall today to give your machine an extra buffer against unauthorized access. We show you how.

Over the past few years, broadband usage has skyrocketed—and for good reason. Broadband can be more than 10 times faster than the speed of the average dial-up, and with a price of around $40/month, it's still fairly competitive compared with the slower, more traditional method of logging on. But does using broadband open you up to new online dangers? Not if you're smart.

While there's no need to be paranoid about broadband security, it's always wise to err on the side of caution and practice due diligence. Your vulnerability risks can be greatly reduced by installing a firewall, which is basically a software program that operates in the background on your PC and monitors all incoming and outgoing data traffic for "suspicious" activity.



You can't be too safe
To set up ICF, navigate to Control Panel>Network and Internet Connectons>Network Connections and right-click on your Internet connection. Select Properties and the Advanced tab. Just check the box!

Your PC communicates with the Internet via thousands of doorways called "ports." Without a firewall, when these ports are open, your PC is vulnerable to attack. Install a firewall, and the software will "guard" those ports, making sure that they're closed or that they open only for legitimate purposes; like so your web browser can access a site, or your e-mail program can download new mail.

XP includes built-in firewall protection, called the Internet Connection Firewall (ICF), which works by maintaining a table of destinations you're trying to access online, such as the location of a particular web page or FTP server. Inbound traffic is allowed through only if ICF can see that there's an unfulfilled outbound request. This means you can surf the web as before, but attempts by unknown systems to access your PC will simply be ignored.

ICF is a simple and powerful tool to protect your PC, but it does have one limitation: There's no check on outgoing connections. This means that if a Trojan Horse is installed on your computer, it could call home and communicate with its author and potentially give someone complete access to your PC. The best way to avoid this risk is by using a good **antivirus program such as** *Norton Antivirus* (see page 56 for more).

When a program tries to access the Internet, ZoneAlarm *will tell you the name of the program and the IP address it's trying to reach.*

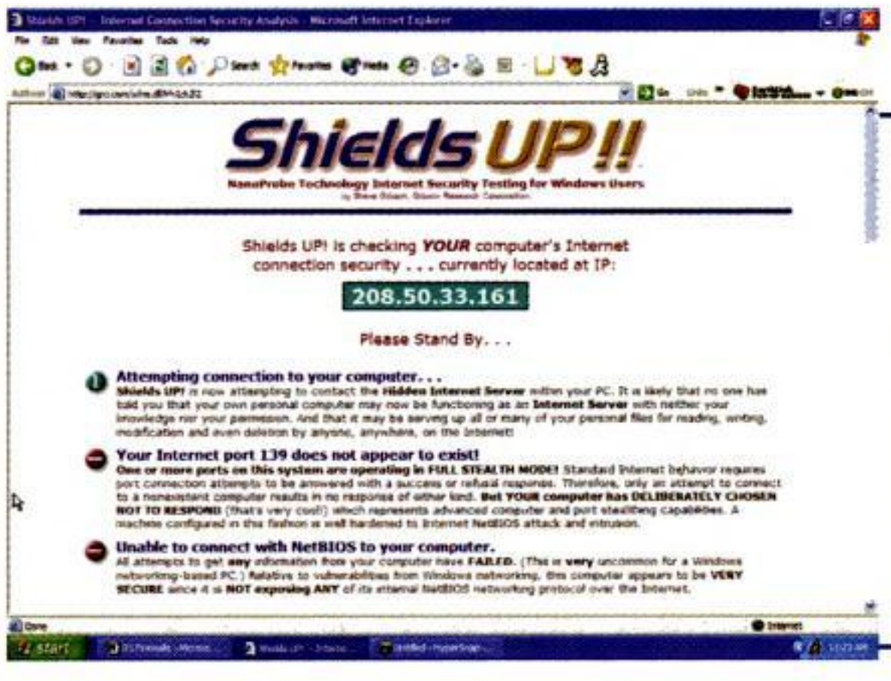
Third-Party Firewalls

For an even higher level of protection, you'll need to install a third-party firewall. Several excellent firewalls are available, and most offer a free version.

The best of the third-party firewalls is *ZoneAlarm*, from Zone Labs (**www.zonealarm.com**). This robust firewall provides a high degree of customization because it lets you track every program that asks for access to the Internet. (You can set it so that commonly used programs, such as *Internet Explorer*, are automatically granted access.) It also reports when someone is scanning your PC. (Hackers will perform scans of various IP addresses to look for vulnerabilities.)

Another advantage that *ZoneAlarm* has over ICF is that it can be set to automatically "lock" your PC's connection and deny all Internet access if your PC is idle for a period of time. This option is particularly helpful if your broadband connection is via cable modem, which often can't be easily disconnected or turned off.

A stripped-down version of *ZoneAlarm* is available for free (and it's on the disc). If you want to try out the full-featured *ZoneAlarm Pro*, you can download a 30-day trial version. ■


Shields UP!!
GRC's Internet Security Testing for Windows Users
Shields UP! is checking YOUR computer's Internet connection security . . . currently located at IP:
208.50.33.161
Please Stand By. . .
Attempting connection to your computer. . .
Your Internet port 139 does not appear to exist!
Unable to connect with NetBIOS to your computer.

Test Your Vulnerability with Scanners

So you've tweaked your system and think it's hacker-proof. Just remember, there are always more ways to test your machine's vulnerabilities. There are plenty of security tools that can help you find out if your system is at risk. They'll scan your PC and report back any potentially dangerous security holes.

Visit the Gibson Research Corporation (www.grc.com) for information about how to ensure your PC's safety, and for tools that quickly plug any security holes. There are also two web-based scanners on the site, *ShieldsUP!!* and *LeakTest*, which are helpful for determining how safe your PC is.

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Kill Pop-ups!

Use our expert tips to surf online unimpeded by unwanted ads.

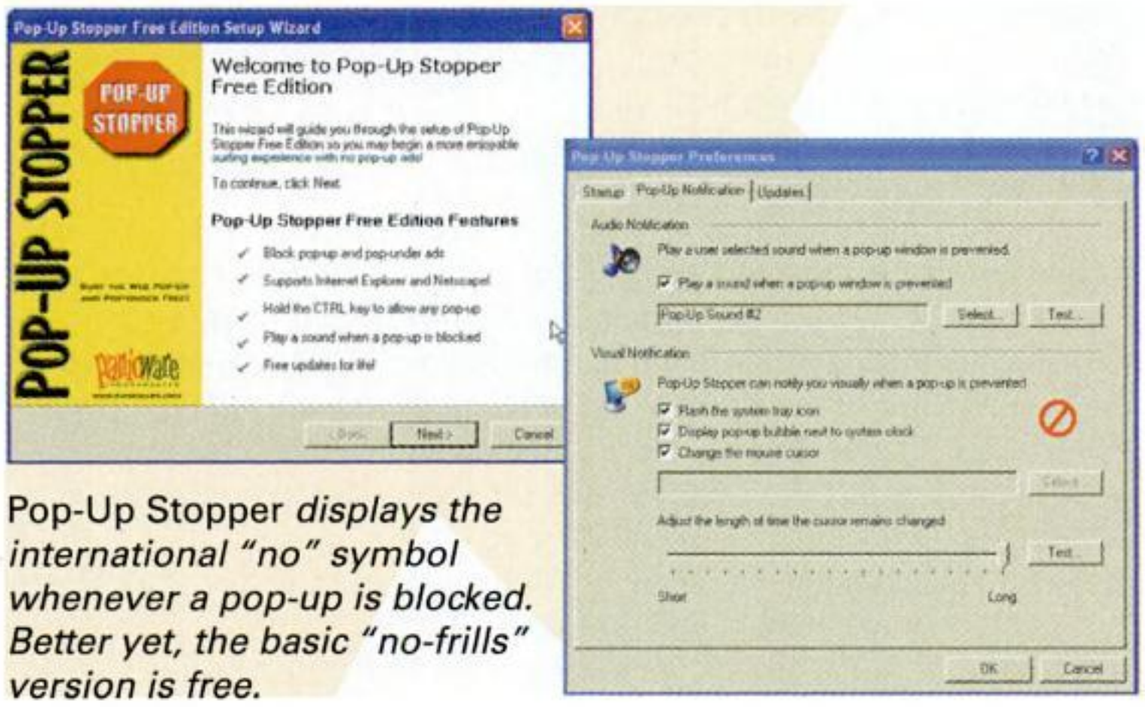
Advertising is as much a part of the web as commercials are of network television. But since most of us mentally edit out the ads embedded in the pages we visit, advertisers have deployed another solution that's not so easy to ignore: The dreaded pop-up ad.

Pop-up ads are displayed in new browser windows that literally pop up on top of (or underneath) the page you really wanted to read. Chain pop-ups are even more annoying. Closing one new browser window opens one or more others, creating a seemingly inescapable nightmare of ads piled on ads. It's enough to make you want to shut your computer off, which is sometimes the only way you can escape the onslaught.

Take back the web by deploying a "pop-up blocker."

Stand-Alone Pop-Up Killers

There are a variety of solutions for jamming these intrusive pop-up pests. Several of Symantec's products have pop-up blocker modules, including *Norton Personal Firewall* and *Norton Internet Security*. McAfee's *Internet Security* program offers similar protection. Another solution is to switch to a web browser, such as *Mozilla*, that offers integrated pop-up ad blocking (see sidebar).



Pop-Up Stopper *displays the international "no" symbol whenever a pop-up is blocked. Better yet, the basic "no-frills" version is free.*

But if you don't need all the other tools you'll find in a commercial product, and you're not interested in switching browsers, you'll find a variety of free alternatives for killing pop-up ads, including Panicware's *Pop-Up Stopper: Free Edition*. (Note: This version only works with *Internet Explorer* and *Netscape*. It's on the disc.)

One of the best features of *Pop-Up Stopper* is that it remains completely invisible while you're visiting web sites that don't employ pop-up ads. If a web site does try to throw a pop-up window at you, *Pop-Up Stopper* shuts down the request and lets you know about it via a warning notification of your choosing, such as an audio alarm or a flashing icon in the Taskbar. One caveat: If you browse a lot of um... "advertising-heavy sites," pop-ups will fly so often that you'd be best advised to keep the notifications to a bare minimum; otherwise, the warnings will become as annoying as the pop-ups!

Not All Pop-ups Are Bad

Despite what you might have heard, you won't want to eliminate *every* pop-up browser window, because some of them will be elements of legitimate and useful web design. Online stores and financial institutions, for example, often use pop-ups to confirm transactions or provide critical information. If the site can't display its pop-up, you might not be able to complete your transaction.

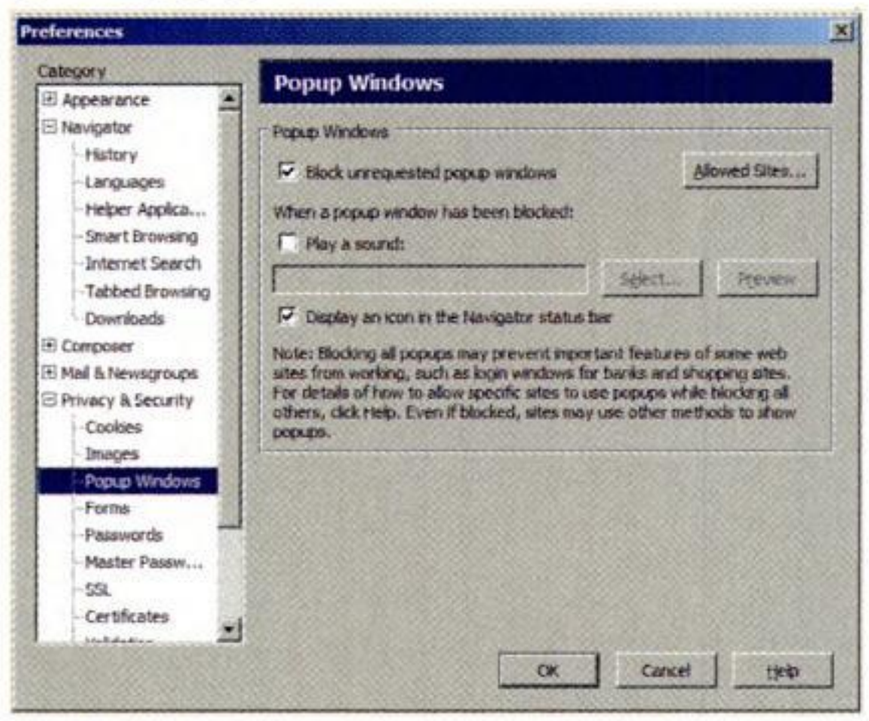
Fortunately, pop-up blockers are becoming more and more sophisticated, and they usually can identify good pop-up windows from bad ones. One of the added attractions of a full-featured pop-up blocker, such as Panicware's *Pop-Up Stopper Professional*, is the ability to maintain lists of sites for which you *don't* want pop-ups blocked. (In the free version of *Pop-up Stopper*, you can allow specific pop-ups to execute by holding down the Ctrl, Alt, or Shift keys when you click on a web-page link.)

Pop-up ads are almost universally annoying, but with the right software, they can now be almost universally ignored. We've touched on a couple of ways you can build a wall between you and unwanted advertising, but there are many others. Give one of these solutions a shot and see if it doesn't improve your web-browsing experience. ■

The Browser Alternative

If you don't like the idea of installing yet another utility program on your computer, you should consider switching to a web browser that has a pop-up blocker built right in. The non-profit Mozilla Organization's *Mozilla* project is one solid choice, and the software is free (and it's on the disc).

Once you've installed *Mozilla*, click on the Edit menu and choose Preferences. In the left-hand pane, click on the plus sign next to the heading Privacy & Security. Next, click on the Popup Windows menu item. In the right-hand side of the window, put a checkmark next to the item that reads "Block unrequested popup windows."



A solid alternative to Internet Explorer, Mozilla *offers built-in pop-up protection.*

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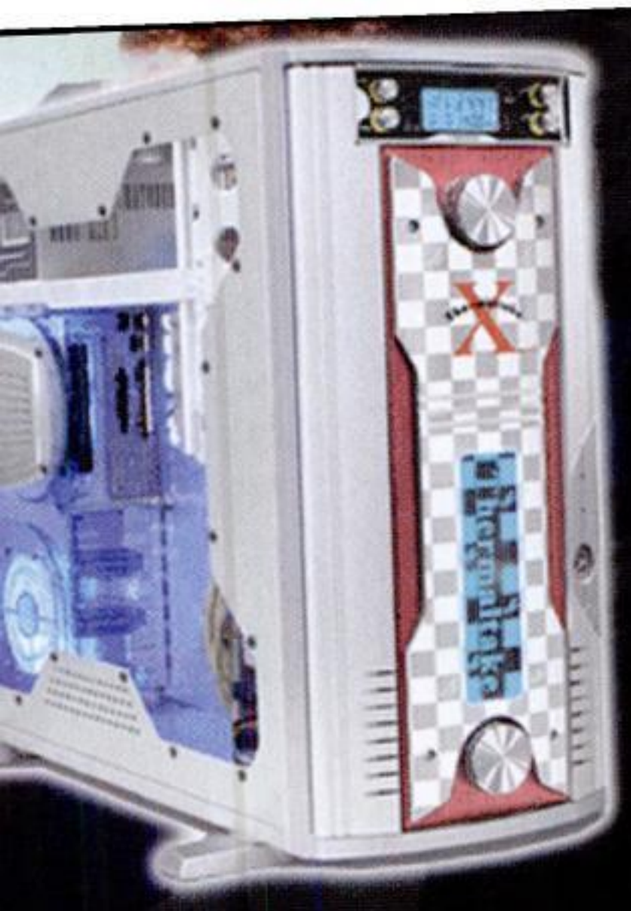

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The Spam Plague

Electronic junk mail is becoming more prolific than its snail mail counterpart. Here's how to reduce the flood.

You might have laughed the first time you got an e-mail that promised to reveal "true secrets about your colon and digestive system," or one that suggested you "avoid the embarrassment of going to the doctor, buy Viagra online." However, after months of receiving 50 or more of these kinds of messages every day, you're probably mightily fed up. We can help. (Though only for the electronic variety. If you know a trick to stop snail-mail junk mail, let us know!)

Unsolicited commercial e-mail, popularly known as "spam," will start out as a trickle. Left unchecked, it will turn into a torrent of junk threatening to overwhelm your inbox and render the simple process of checking your e-mail a massive headache.

Those who deal in spam churn it out in enormous batches, often mailing their unwelcome pitches to millions of e-mail addresses at once, all in an effort to sell you something you'd probably never consider buying in the first place.

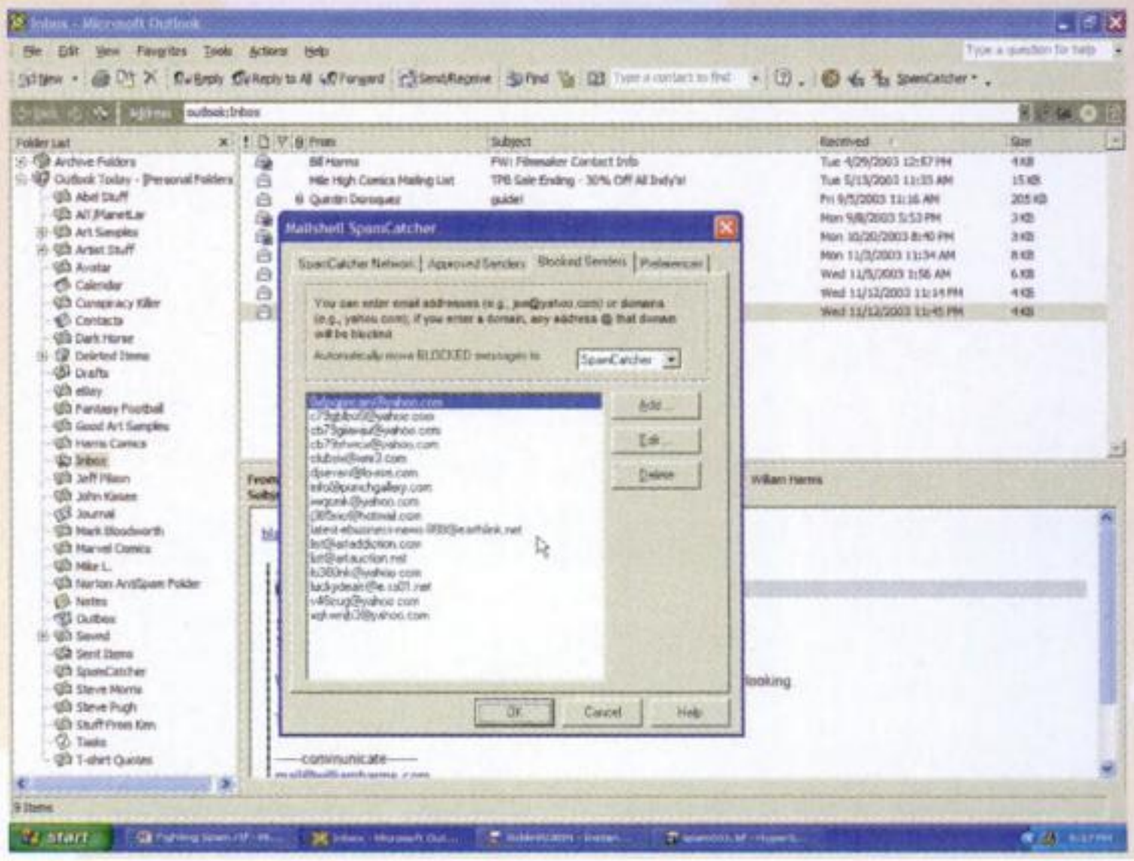
These unscrupulous "spammers" consider no topic off limits: You'll encounter everything from offers for cheap septic-tank repair to X-rated invitations to view explicit pornography. And once the spam hose is pointed in your direction, it's nearly impossible to shut it off. But that doesn't mean you can't take steps to stem the tide.

Protect Your E-Mail Address

One of the most common methods spammers use to collect, or harvest, e-mail addresses to target is scanning web sites, online forums, and message boards. They deploy automated software to sift through a web site, searching for e-mail addresses. These are then added to the spammer's database, where they become easy targets.

There are two good methods for fighting this particular problem: First, create a secondary e-mail account with a free service provider, such as Yahoo or Hotmail, and provide *that* address whenever you choose to post an e-mail address online. Reserve your primary e-mail address (the one your Internet service provider gave you) for corresponding with family, friends, and colleagues.

A second method is to alter the spelling of your e-mail address whenever you post it online. If you change your e-mail address from joe@e-mail.com to joe@[REMOVE TO E-mail].e-mail.com, for example, you'll render your address useless to a spammer's harvester. At the same time, you'll provide legitimate correspondents with clear instructions for reaching you.



If spam gets past SpamCatcher's *defenses, you can add the spammer's address to the Blocked Senders list to prevent a reoccurrence.*

Another common e-mail-collection method is to bulk-send hundreds of thousands of e-mails to completely random addresses, e.g., bob@eztech.com, rob@eztech.com, cob@eztech.com, and so on. If the spammer gets a response from any of these—even if it's a "Hey, quit sending me this crap!"—they know they've hit a valid e-mail address. This method is more difficult to combat, simply because it's so random, but the best tactic is to ignore the message.

In fact, silence is probably your best weapon in the war against spam. Here's why: If you respond to a spam e-mail, you're confirming that your e-mail account is valid and in use. Indeed, most spam messages come with a message at the bottom of the e-mail that reads something like "Click here to unsubscribe." *Never* click on that link.

Once your e-mail address has been confirmed, the floodgates will really open up, because each spammer who obtains your e-mail address will turn around and sell it to yet more spammers.

When to Use Your Real Address

There are some instances in which you must provide your real e-mail address online. One situation might be if you're register-

A Spam-Free Future?

The U.S. Federal Trade Commission recently implemented a national do-not-call list, which prevents telemarketers from making unwanted and intrusive phone calls to private citizens who opt into the program. The U.S. Congress recently passed legislation that creates a similar do-not-spam list.

The proposed law (it had not yet been signed by President Bush at press time) specifies strict guidelines for commercial email, and it stipulates severe fines for violators. But this legislation is widely expected to amount to much ado about nothing. The root problem is that much of today's spam originates from outside U.S. borders, where the federal government has no jurisdiction.

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ing to access your bank account online. And there are some online services that send a confirmation notice to your e-mail address, which you must respond to before you can utilize the service. In the latter scenario, you're basically proving you are who you claim to be—or at least that you have permission to use the e-mail address you've provided.

In these circumstances, a legitimate company will generally provide you with the opportunity to decline any promotional e-mails from the company or its partners. Unless you feel it's absolutely vital that you receive such e-mail, you should always "opt out" of these offers. Here's why:

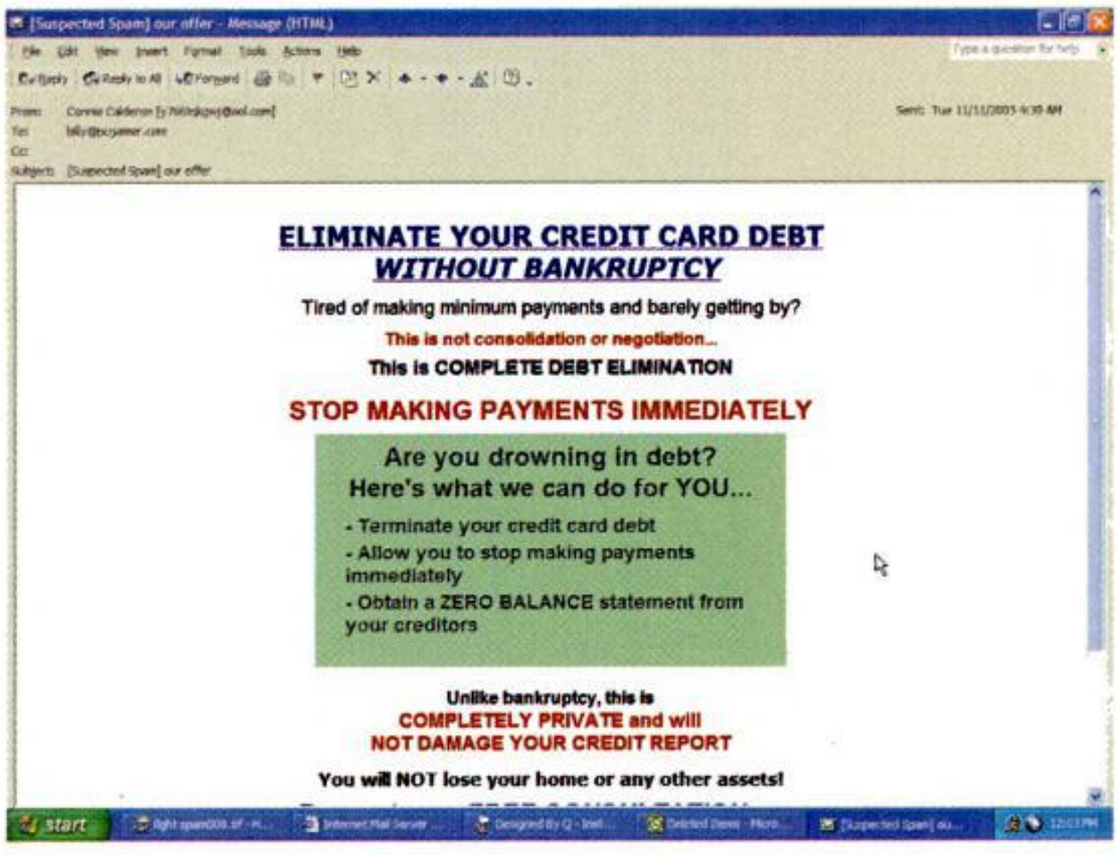
With all the corporate consolidation that has occurred over the last few years, the company you're dealing with could be affiliated with a dozen other companies. If you give them permission, they may share your e-mail address with every other operation under their umbrella, and then they'll sell your e-mail address to every other company that's willing to cough up a few cents for it. (Individual addresses aren't worth much, but a collection of millions can be worth a great deal.)

Another way to protect your primary e-mail address is to politely ask your friends and co-workers to not send electronic greeting cards or party invitations to your primary e-mail address; instead, suggest they use your secondary address. Why? Because the companies that provide these types of services will invariably add your e-mail address to their own marketing lists, which might then be sold or rented to a third party. And that can lead to spam.

Antispam Software

Similar to antivirus software, which is designed to prevent viruses from invading your computer (see page 53), antispam software shields your e-mail inbox from the torrent of junk e-mail.

If you're using an e-mail client, such as Microsoft's *Outlook Express* or Qualcomm's *Eudora,* and you're lucky enough to receive only a little spam each day, you'd be well-served by Symantec's *Norton AntiSpam.* This program is very easy to install and configure, and it delivers the added benefit of blocking some of the intrusive banner and pop-up ads you encounter on many web sites today.


[Suspected Spam] our offer - Message (HTML)
ELIMINATE YOUR CREDIT CARD DEBT
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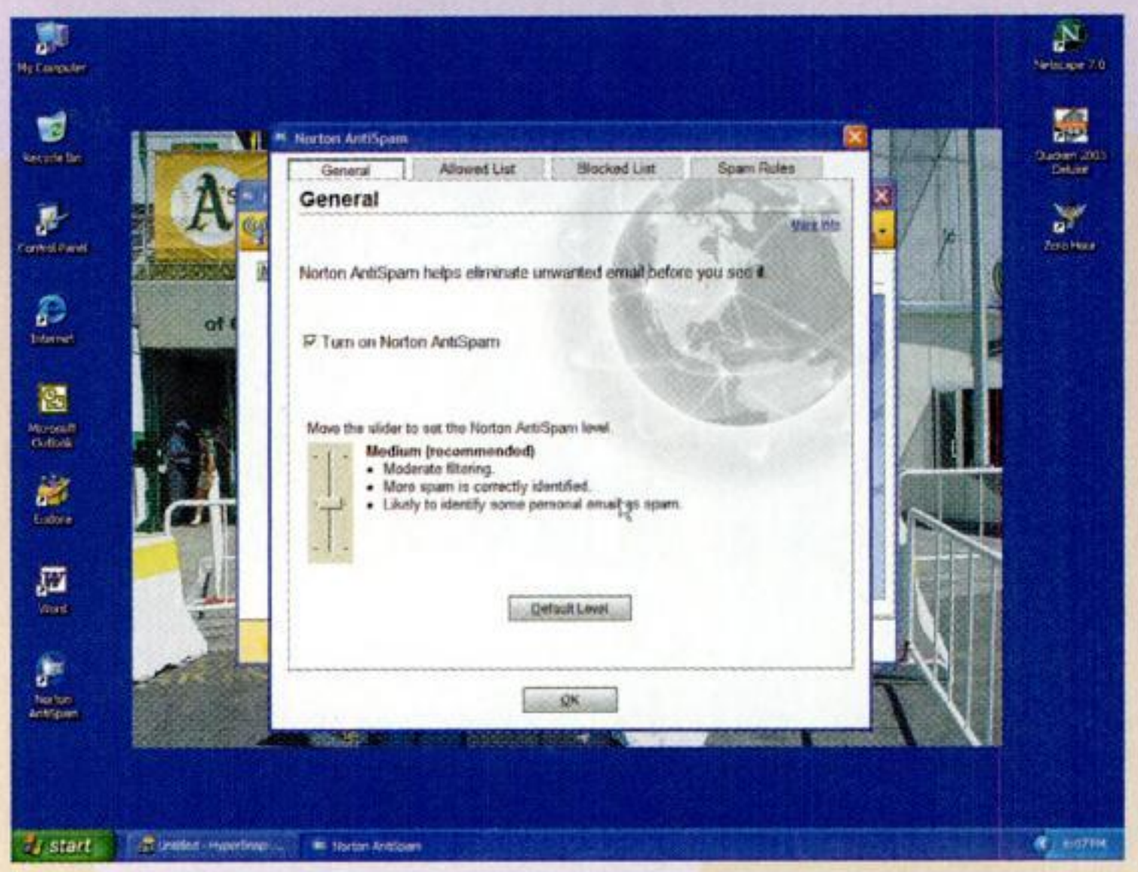
You will NOT lose your home or any other assets!

How many useless messages like this one do you have in your inbox? Stem the tide today by installing antispam software.



Symantec's Norton AntiSpam *enables you to set levels of protection, but there's a trade-off between stopping more spam and blocking legit e-mails.*

As soon as you install Norton *AntiSpam*, the program will search through your address book and ask if you'd like to add the e-mail addresses it finds there to its Allowed List. E-mail from the contacts appearing on this list will be routed to your inbox automatically, so they're never incorrectly identified as spam.

If you put the program in Trusted Mode, it will automatically tag as unwanted spam e-mail from *any* address that's not included in your Allowed List. Although this approach sounds good in theory, you'll likely find yourself manually filtering through the tagged mail searching for e-mail from people you simply forgot to add to your Allowed List. These are what's known as "false positives," because they're legitimate e-mail messages that have been mistakenly identified as spam.

If you go the safer route with Norton *AntiSpam*, you'll need to manually identify spam as such, and then the program will automatically block any *future* e-mail sent from that address. The problem here is that spammers frequently use ever-changing and even fake e-mail addresses, specifically to foil this approach to spam-filtering.

If you're already being bombarded by spam, you'll want a program that also offers these two functions: a master list of known spam sources, and the ability to "bounce" unwanted e-mails.

Antispam software that has a master list of known spam sources (which is periodically updated by the program's developer) will automatically block e-mail from any of those addresses. Antispam software that can bounce spam will send an error message back to the source, claiming that your e-mail address is no longer valid. Eventually, the spammers will delete your address from their databases and the amount of spam you receive will shrink. (Spammers might be unscrupulous, but they recognize there's no value in sending e-mail to invalid addresses.)

McAfee's *SpamKiller* and Mailshell's *SpamCatcher* (on the disc!) are two anti-spam programs that support these features. And like *Norton AntiSpam*, these programs will integrate themselves into Microsoft's *Outlook* and *Outlook Express* programs, so you don't feel as though you have to deal with your e-mail before you can deal with your e-mail. ■

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Protect Your Wireless LAN

Keep the neighborhood snoops, sniffers, and data thieves off your 802.11 network.

Every month, you pay five sawbucks for a broadband Internet connection, and your favorite way to savor the lightning-fast downloads is via a wireless Internet connection. But danger lurks in this high-speed, free-range utopia. Just consider how many seedy online guides explain how to get "free broadband" by leeching off someone else's precious Wi-Fi bandwidth!

Stolen bandwidth isn't the only problem. Once thieves can leech your net connection, they also can get access to files on your PC, track the sites you browse, and even read your private e-mails and instant messages. Yikes! *It sucks to be you.*

But that's where we come in. We're here to save you from bandwidth pirates and other pimply ne'er-do-wells. Whether you use 802.11b or 802.11g, the precautions for wireless safety are about the same. We'll show you how to lock down your data and minimize the chances that a wireless snooper will leech from your LAN.

Wireless networking requires that every data packet sent to and from your PC be broadcast over the airwaves, so there's always a chance that someone will be able to sniff your data. If you want to make your LAN 100 percent secure, you'll have to disconnect it from wireless technology entirely. Still, the tips in this article will protect you from all but the most determined miscreants.

What You'll Need

- ***802.11b or 802.11g access point***
- ***802.11b or 802.11g cards to access the LAN***
- ***100Mbit Ethernet hub***
- ***NetStumbler (www.netstumbler.com)***
- ***Laptop computer***

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RESERATOR 1

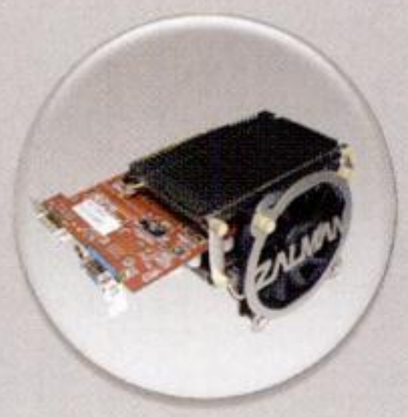
Fanless Water Cooling System

Reserator 1 is designed with an optimal heat dissipation area based on ZalmanTech's HCET (High Capacity Extrusion Technique) and high efficiency cooling technology. As a result, this product achieves excellent cooling performance even with natural convection, making it the world's first fanless, noiseless water-cooling system. The reservoir, radiator, and the water pump are conveniently integrated into one assembly, and the heatsink is anodized to prevent corrosion and rust. In addition, the kit includes the high-performance ZM-WB2 Gold waterblock which is not susceptible to galvanic corrosion.

Zalman's CNPS7000A-Cu Cooler

Pure Copper base materials ensure excellent heat dissipation.

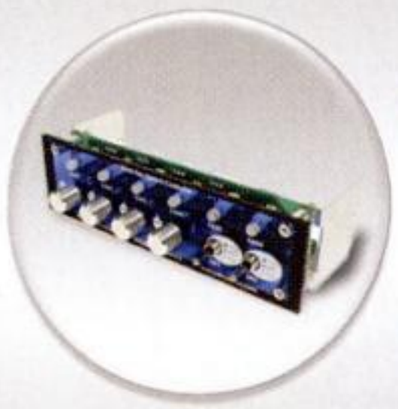
Intel Pentium 4 (Socket478), AMD Athlon/Duron/Athlon XP (Socket 462), and AMD Athlon 64 (Socket754) compatible design for broad compatibility.



Zalman's Heatpipe VGA Cooler ZM80C-HP + OP1

By utilizing a heatpipe, the GPU can be cooled without a fan, allowing for complete noiselessness and permanent, maintenance-free operation.

By attaching the noiseless fan ZM-OP1, ZM80C-HP's cooling performance is greatly enhanced.



Zalman's ZM-MFC1

6-Channel Fan controller for 5.25" Bay.

Universal DC fan controller.

Easy fan speed check with color/intensity-changing LED-lights.

3-pin extension cable for convenient installation.

FrozenCPU's mission is to provide the best possible cooling solutions and highest quailty PC modifications. From modular power supplies to watercooling kits to cathode lighting, we strive to be a one stop source for all our customers worldwide.

Our unique business model allows for customers to place orders for even the most complex parts with all the services chosen and still be able to ship out the sameday before 6PM EST.

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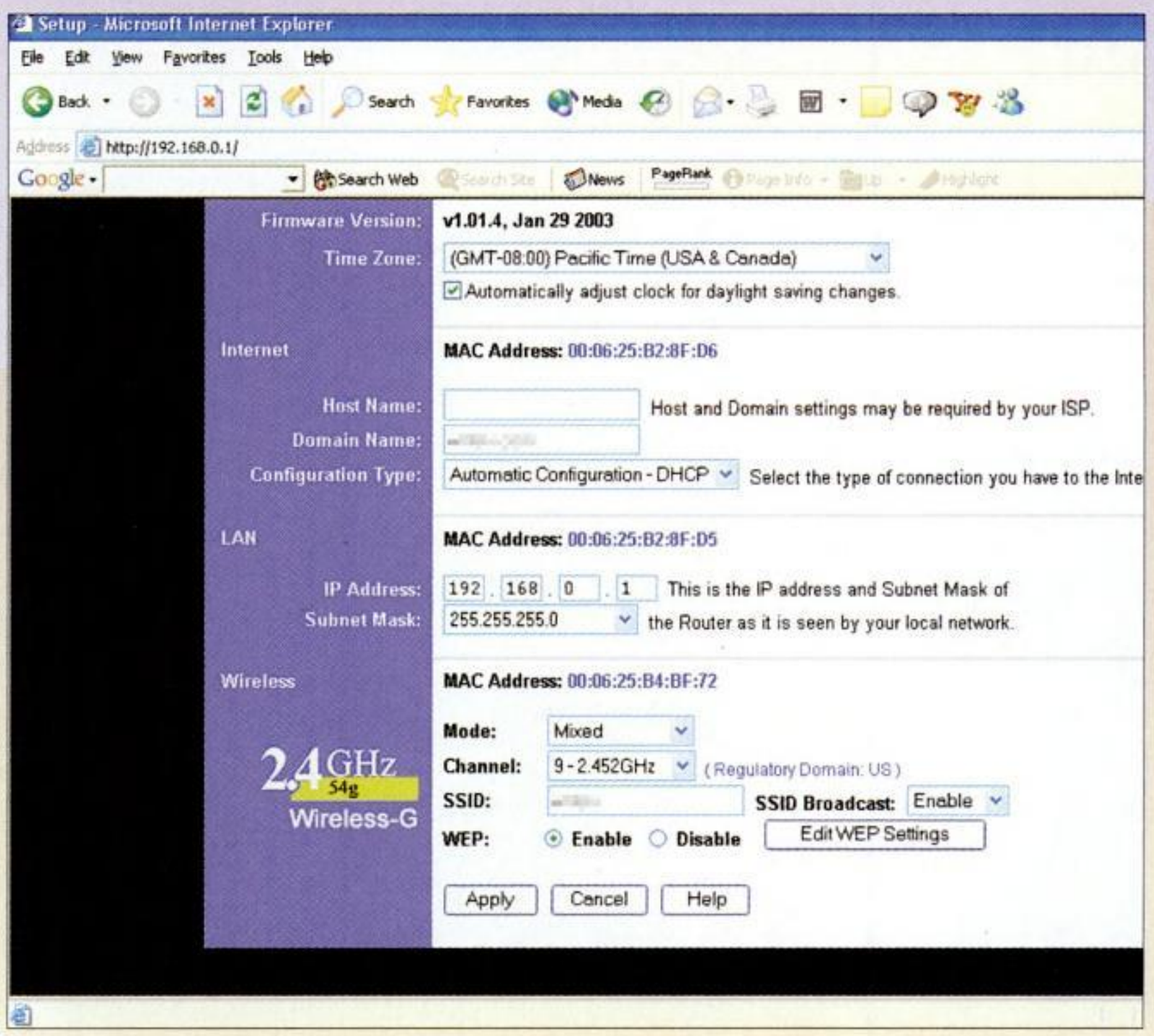
Give Your Network a New Name

Your network's name can actually be a weak spot. In order to gain access to your network, an intruder has to know its name—commonly called an SSID. Most access points from a single manufacturer ship with the same SSID (preset at the factory), and the easy set-up programs that come with the hardware don't always encourage users to change the SSID.

What can you do to fix this? Change your network's SSID! Open up the configuration program that was provided with your access point, and change the SSID to something completely unique and obscure. We recommend that you *not* use anything obvious, such as your hardware manufacturer's name, or words like "default," "wireless," "802.11," "network," "home," or anything else that may be easily guessed after just a few tries.

While you're changing the SSID, make sure to change the password for your AP's administration account. No matter how secure you make your AP, it's wide open if a cracker can just log in using the username and password printed in the instruction manual.

Changing your SSID is the first step you need to take, but it's certainly not the end of your lockdown routine.


Setup - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.0.1/
Google Search Web News PageRank
Firmware Version: v1.01.4, Jan 29 2003
Time Zone: (GMT-08:00) Pacific Time (USA & Canada)
Automatically adjust clock for daylight saving changes.
Internet
MAC Address: 00:06:25:B2:8F:D6
Host Name:
Host and Domain settings may be required by your ISP.
Domain Name:
Configuration Type: Automatic Configuration - DHCP
Select the type of connection you have to the Inte
LAN
MAC Address: 00:06:25:B2:8F:D5
IP Address: 192 . 168 . 0 . 1
This is the IP address and Subnet Mask of
Subnet Mask: 255.255.255.0
the Router as it is seen by your local network.
Wireless
MAC Address: 00:06:25:B4:BF:72
2.4GHz 54g Wireless-G
Mode: Mixed
Channel: 9 - 2.452GHz
(Regulatory Domain: US)
SSID:
SSID Broadcast: Enable
WEP: Enable Disable
Edit WEP Settings
Apply Cancel Help

Get WEP Working

Enabling WEP—wired equivalent privacy—is the second-most important thing you can do to stymie would-be wireless freeloaders. WEP isn't 100 percent secure, but cracking the encryption technology isn't a simple exercise. In fact, it presents more trouble than most common bandwidth thieves are willing to wrestle with.

First things first: If your access point and your Wi-Fi card support 128-bit encryption, use 128-bit encryption. A 128-bit key can indeed be cracked, but even under perfect circumstances, a cracker will have to sniff packets from your wireless network for six or more hours in order to get enough data to generate a WEP key. And we repeat: That's in an *ideal* situation. It can actually take days or longer to sniff enough packets to crack a 128-bit key.

Of course, a 128-bit key won't help you if it's just 1111 1111 1111 1111 1111 1111 11. Interfaces for entering keys will differ from access point to access point. Some APs require that you enter the key in hexadecimal, while others prefer plain ASCII text. Luckily, the Windows wireless control panel lets you enter your key in either format, so make sure you enter the key in the same format in both places!

Wireless Network Connection Properties
Wireless Network Properties
Network name (SSID): 101
Wireless network key (WEP)
This network requires a key for the following:
Data encryption (WEP enabled)
Network Authentication (Shared mode)
Network key: ••••••••••••••••••••
Key format: Hexadecimal digits
Key length: 104 bits (26 digits)
Key index (advanced): 0
The key is provided for me automatically

When you create your key, remember that hex keys can include the digits 0 through 9, and the letters A through F. ASCII keys can be any letter of the alphabet or any number. For maximum security, avoid repetition or a pattern.

Gotta Keep 'em Separated

Now that your access point is reasonably secure, it's time to separate your networks. By separating them, you'll deny access to your wired LAN even if a cracker manages to break into your wireless LAN. The separation process involves getting a second hub and a second IP address from your ISP, and then setting up a firewall on your wired network.

First, you'll need to rewire your wired network. Connect your new hub to your DSL or cable modem, then connect your wired LAN to one port on the hub, and connect your access point to another port. Next, configure your access point with the new IP address. Now you have two separate networks—one wired and one wireless—running off the same broadband modem.

Of course, none of this will do any good if you don't have a firewall on your wired LAN, so make sure you at least have *ZoneAlarm* running on your router.

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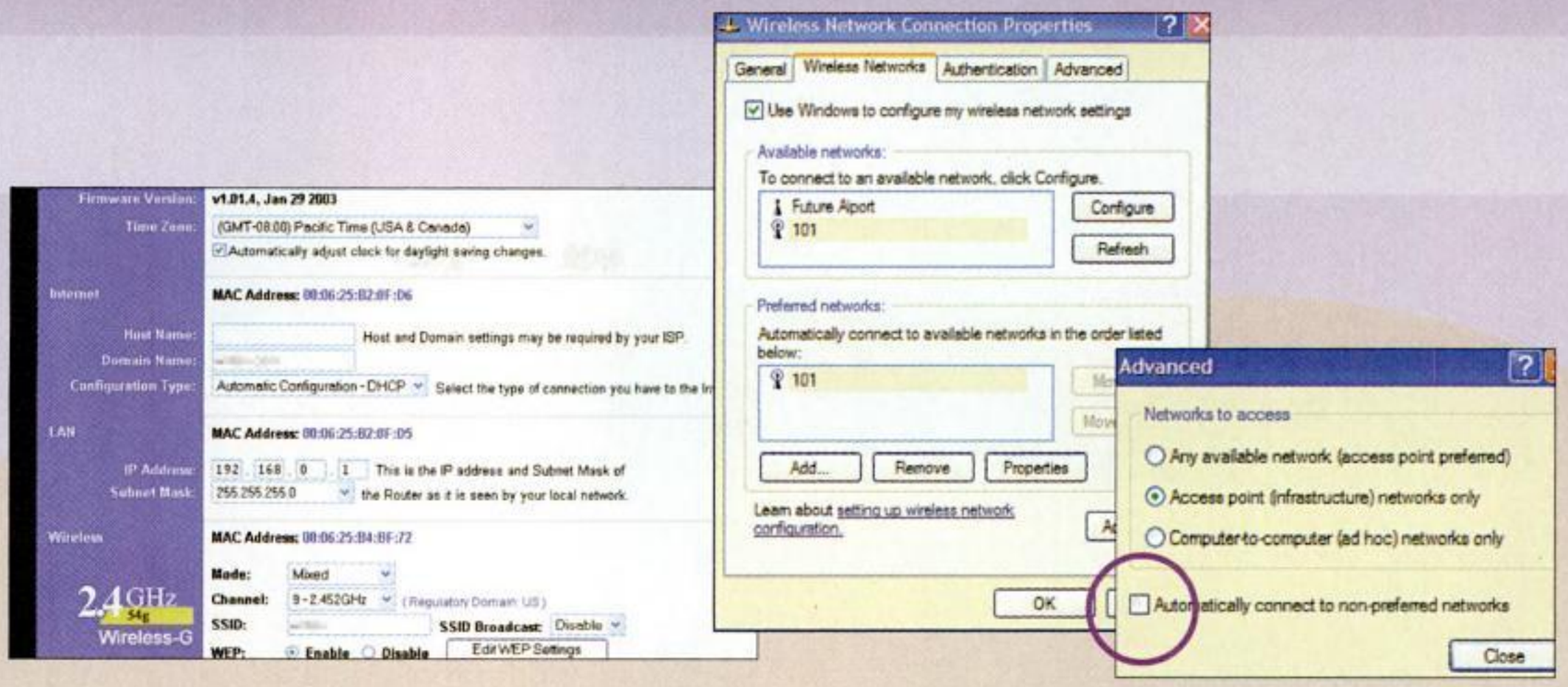
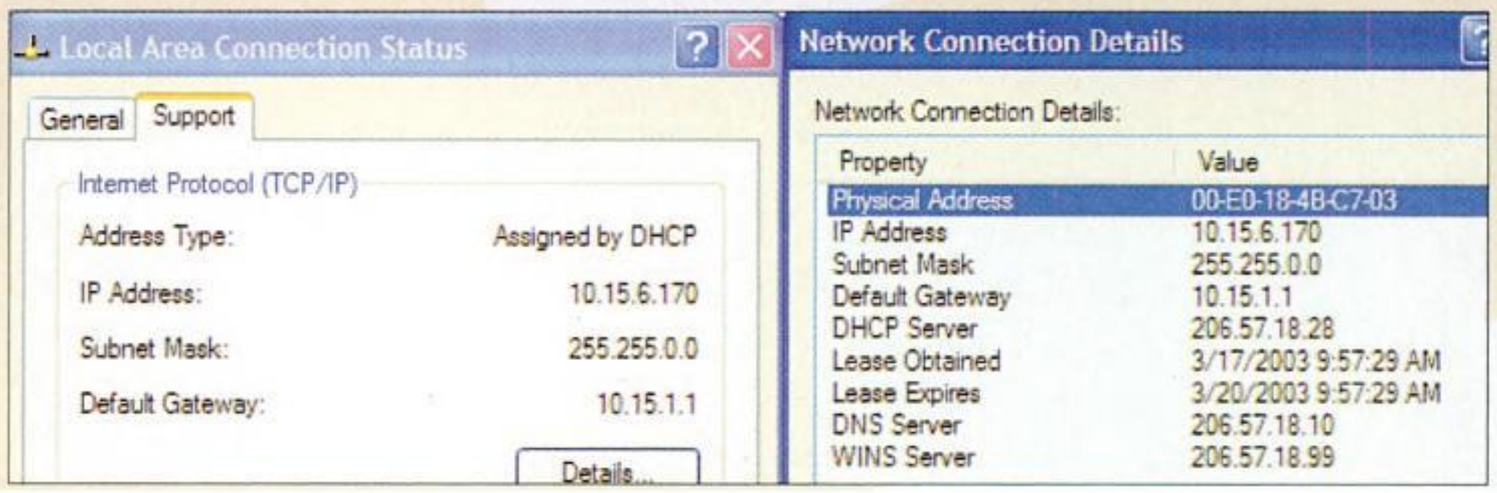
Disable SSID Broadcasting



Most access points, however, include an option to disable SSID broadcasting. It's generally a good setting to disable, but we have had some problems maintaining connectivity when using the Windows built-in wireless configuration interface to connect to Wi-Fi LANs with SSID broadcasting disabled. And this problem is exacerbated if other people in your neighborhood have wireless LANs set up.

If you're noticing interference after disabling SSID broadcasting, there's a setting you can change to minimize the problem. Right-click My Network Places and select Properties. Now right-click your specific wireless connection, and select Properties. Go to the Wireless Settings tab, and select the Advanced option. Uncheck the "Automatically connect to non-preferred networks" option.

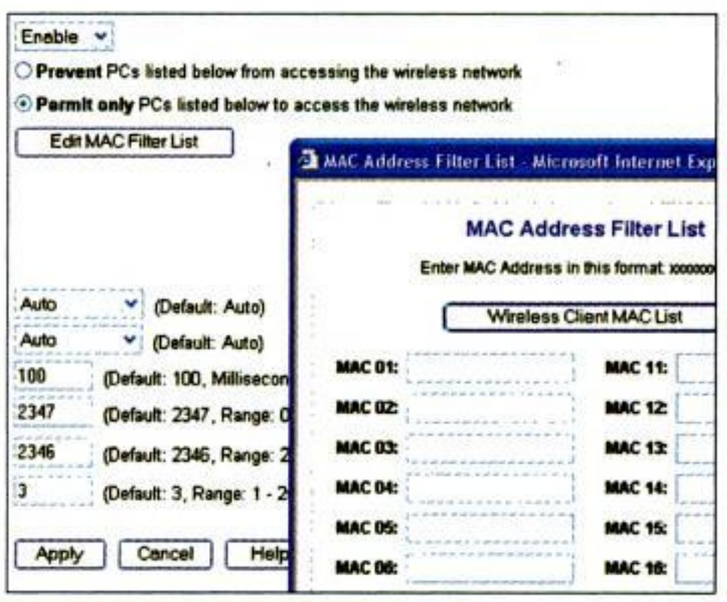
Super Security



Most access points are able to deny wireless access to unknown computers. Each network card has a unique number assigned when it's manufactured. This "MAC address" is a 12-digit code, and no other piece of network hardware will share the same code. By telling your wireless LAN to grant access only to network cards that have known MAC addresses, you can prevent unknown users from gaining entry.

Each AP will handle MAC address-filtering differently, so you'll need to consult your instruction manual. The Linksys interface is pictured above. Just remember, any time you want to add a new authorized user to your wireless LAN, you'll have to get the MAC address, go into your access point's configuration screen, and manually enter it.

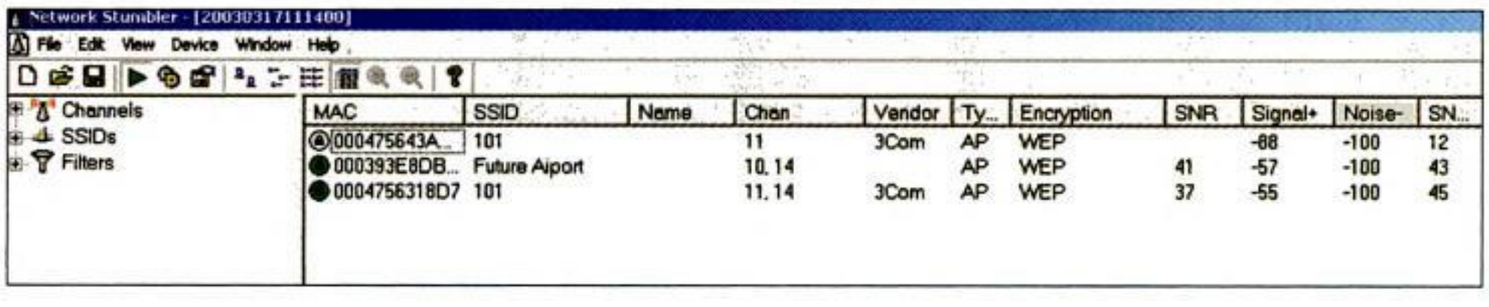
To get the MAC address from a Windows XP system, right-click My Network Places and select Properties. Next, right-click your wireless network connection and select Status. Go to the Support tab, and click Details. The MAC address is labeled Physical Address in the window that pops up.



Check Your Back

If you've followed all our instructions, your wireless LAN should be reasonably secure. If the National Security Agency wants into your wireless LAN, there's not much you can do to stop it, but our tips should keep little Billy next door from using your DSL line to download gigabytes of Trent Reznor MP3s.

Regardless, you should still install *NetStumbler* (**www.netstumbler.com**) on one of your wireless PCs, and see if your LAN shows up. *NetStumbler* is the most common 802.11 network sniffer. Most likely, it's what your enemies will be using to discover and compromise your LAN. If you configured everything correctly, your access point shouldn't even show up in this utility's window. If you don't see it, the freeloaders probably won't either, and will just move on to easier prey. ■


Network Stumbler - [20030317111400]
File Edit View Device Window Help
Channels
SSIDs
Filters
MAC SSID Name Chan Vendor Ty... Encryption SNR Signal+ Noise- SN...
0004756318D7 101 11, 14 3Com AP WEP 37 -55 -100 45

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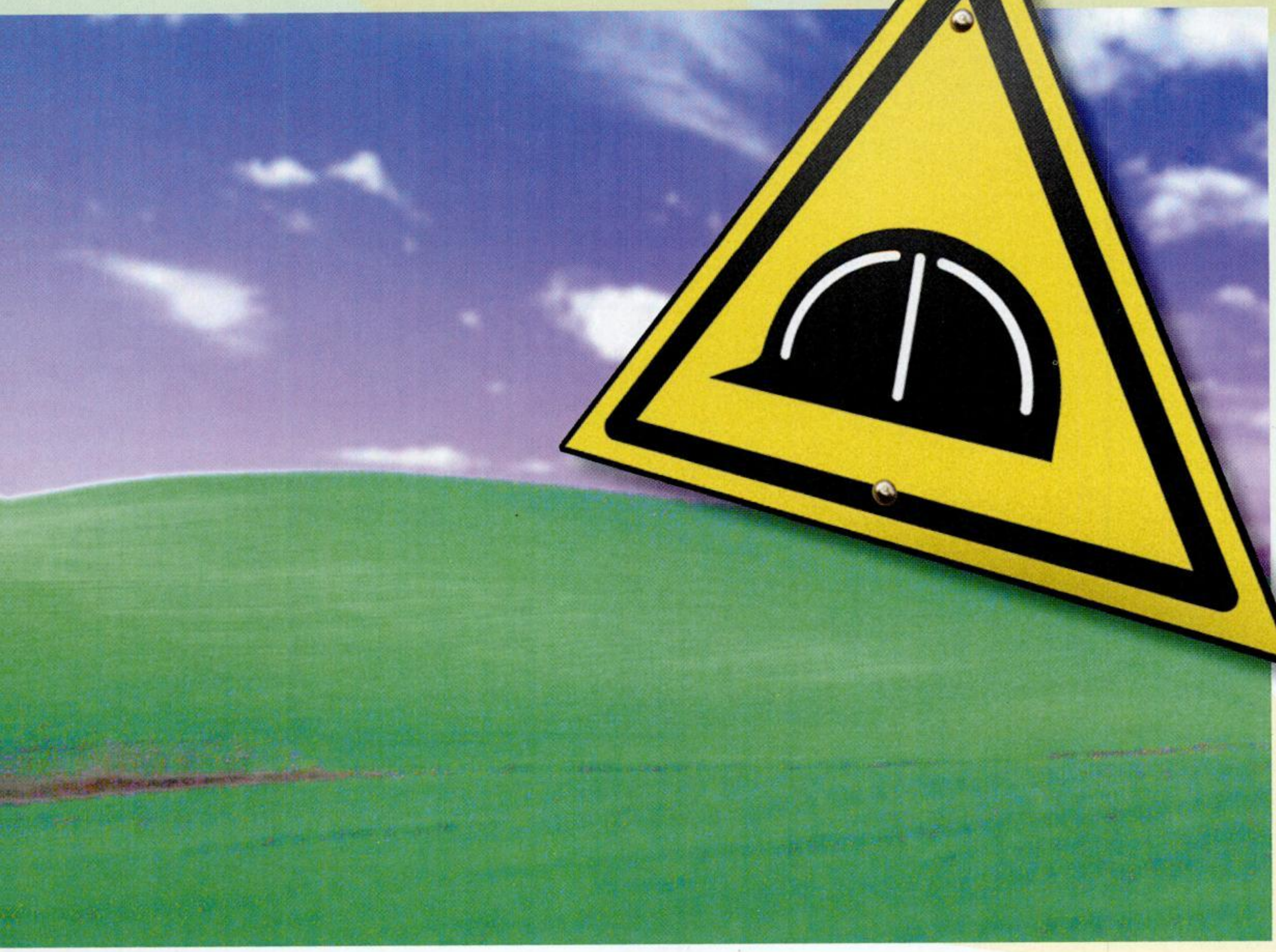
Step Six

Master the Dark Arts: Be a Power User

You're not a true master of Windows XP until you have edited the Registry. Follow our tips to crack into the code, customize the OS to suit your style, and complete your transformation into a Power User.



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We've shown you how to revitalize your desktop, maximize your online connection, and accelerate, secure, and maintain your WinXP-powered PC. Now you're ready for the Big Show: Hacking the Windows Registry to further customize XP to meet your needs. This is where the true power users are separated from the wannabes.

If the mere thought of exposing XP's guts and editing its code makes you cringe—maybe you've heard horror stories of people who've tried and have hosed their OS' in the process—there's no need to worry. Really. You've got *Maximum PC* here to guide you through this last, vital step in earning your XP power-user stripes.

We've been dabbling in the "Dark Arts" for years, and have made all the mistakes already so that you won't have to. While operating on Windows' Registry admittedly has always been a risky and extremely complex procedure, it has never been as safe and straightforward as it is now with XP (provided you follow some basic guidelines, which we'll outline for you).

Five Registry "hives" track all of the data residing on your PC, and each hive contains branches called keys.

XP's built-in Registry editor, Regedit, *isn't pretty but it gets the job done.*

Essentially, you can think of the Registry as the Wizard of Oz that's behind the Windows graphical user interface you see every day. Others might tell you that you really don't want to see the wizard unless it's absolutely necessary. We're here to tell you different: Rolling up your sleeves and editing the Registry can be a very rewarding experience, particularly when a successful "hack" results in a more efficient way for you to interact with your PC. And it will definitely make you feel like you're in control of your OS, rather than the inverse.

The Registry: An Introduction

It's possible you've been operating your PC for years without ever taking note of the Registry—oblivious to the OS potential you could unleash with some strategic modifications here and there. If so, a primer is in order.

The Registry is a Windows database that operates behind the scenes, storing information about everything happening within your computer. Whenever you make a change to your computer, be it installing new hardware or software, or changing your desktop background, this change is flagged in the Registry.

The Registry is hierarchical in structure, similar to the branch/tree structure used in hard drives. The main branches are called "hives," and the hives contain "keys." Within the keys are "subkeys" and values that reflect the actual data stored in the Registry. By tweaking these values you can alter the way XP looks, increase the speed at which it operates, and change many of its default settings to match your preferences.

For example, each time a new user logs on, a new hive is created for that user with a separate file for their user profile. Naturally, this hive is called the "User Profile Hive," and it contains specific Registry information about the user's application settings, desktop, network connections, etc. User Profile hives are located under the HKEY_USERS key.

The supporting file for the User Profile hive for a given user is located in HKEY_LOCAL_MACHINE\Software\Microsoft\WindowsNT\CurrentVersion\ProfileList\SID\ProfileImagePath, and is named Ntuser.dat. The value of ProfileImagePath is a binary representation of the directory name of the user's profile, which includes the user's name. The Registry editor displays this binary value as a string. By altering the values in this string, as well as any other values contained in the rest of the Registry's keys and subkeys, we can change the way XP works or looks. There are a variety of third-party, GUI-based programs you can use to do this, such as Macecraft Software's *jv16PowerTools* (on the disc). However, for most of us, the Registry editor that comes with XP works just fine—though it's very low on bells and whistles. To access the editor, you simply click on Start Menu, Run, and type **`Regedit`**.

Cover Your Back With System Restore

Don't just go randomly pointing and clicking about. Changing some Registry settings could damage or disable critical XP components, and even prevent Windows from running at all. It's important that you proceed slowly and with caution, and that you don't make any changes unless you're absolutely sure of what you're doing. In fact, it's wise to perform a full system backup before diving into the Registry, particularly if you've no previous hacking experience.

At the very least, you should make prudent use of WinXP's System Restore procedure, which lets you set a "restore point" that you can use as a safety net. If your hacking efforts result in XP instability, or just in certain programs or functions not working as you'd like, you can just roll XP back to the last restore point and start over with a healthy OS—just like you stepped back in time.

Setting a restore point couldn't be easier, so there's no excuse not to take advantage of it. (You really should set a restore point before you make any type of significant change to your system, whether it's installing a new video card or even just installing a new game or version of *DirectX*.) And the best thing about the process is that rolling back to a particular restore point will not result in the loss of data you've created recently, such as email or *Word* documents, and the entire process is reversible. So if you select the wrong restore point and actually perform the roll-back, you can easily fix your mistake. For a walkthrough of the process, see our sidebar on this page.

Start Slowly, with Basic Hacks

OK, now that we've covered the Registry basics, and set a restore point, it's time to take a deep breath, and wade into the hacking pool. We'll start off nice and slow—covering some simple Registry edits that alter XP's default organizational structure—and build up to more complicated hacks. By the time you finish plowing through our baker's dozen of hacks, you'll feel like a pro, and should be confident enough with the process to seek out your own tweaks to try out.

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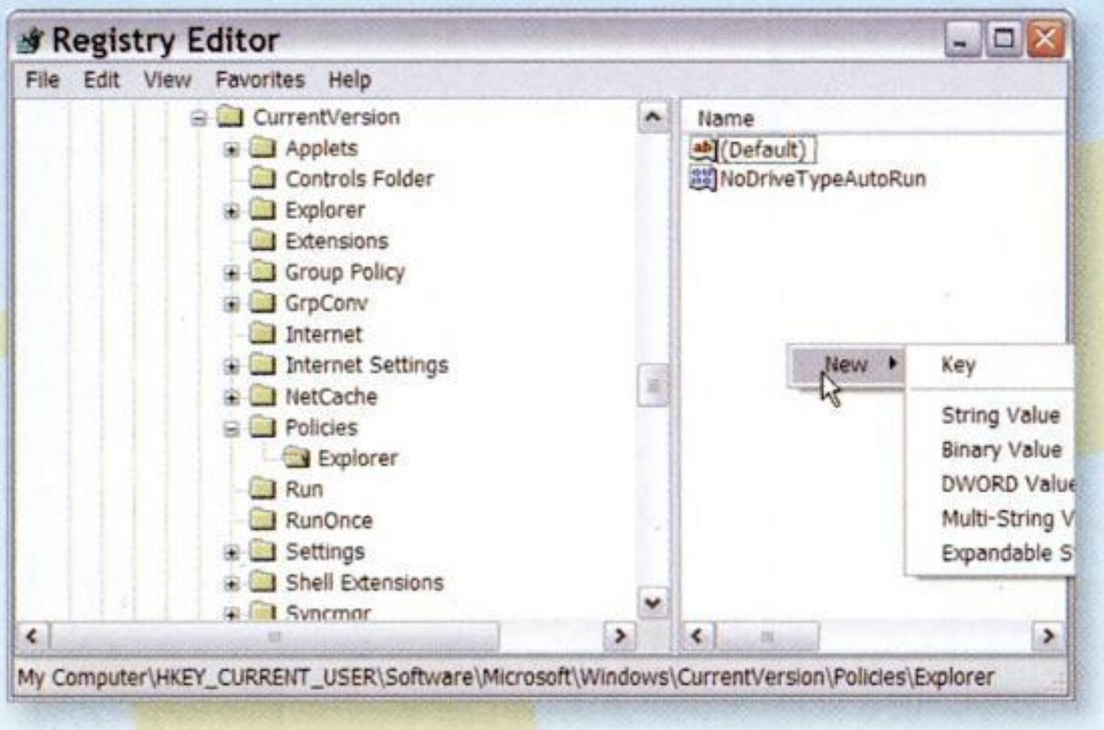
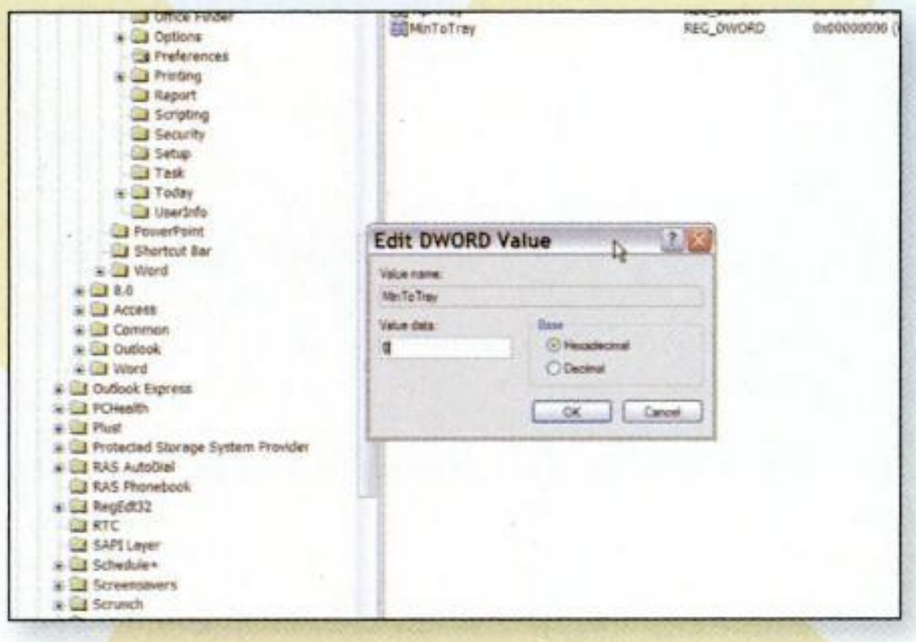
Hack One:

Remove Network Drive Options

After you've been using your PC for a bit, Explorer's menus tend to become pretty darn cluttered—and we bet that cleaning them up is right above organizing your sock drawer on your priority list. Here's a little hack that takes but a few seconds and will make things neater. We're going to remove two items from the Tools menu, the "Map" and "Disconnect" Network Drive options, which most of us don't give a hoot about anyways, as we're using a stand-alone PC. The first step, which will be the same first step for the rest of the tips and will be assumed after this point, is to fire up *Regedit* (Start, Run, type `Regedit`). Next, navigate to HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer by simply using the drop-down menus under the HKEY_CURRENT_USER Hive. Create a new DWORD entry called "NoNetConnectDisconnect," and give it a value of 1. Do this by right-clicking anywhere in the right window pane, selecting New, and DWORD Value. Now, simply close *Regedit* and reboot. To re-enable these settings later, change the value to 0 or delete the entry.





Hack Two:

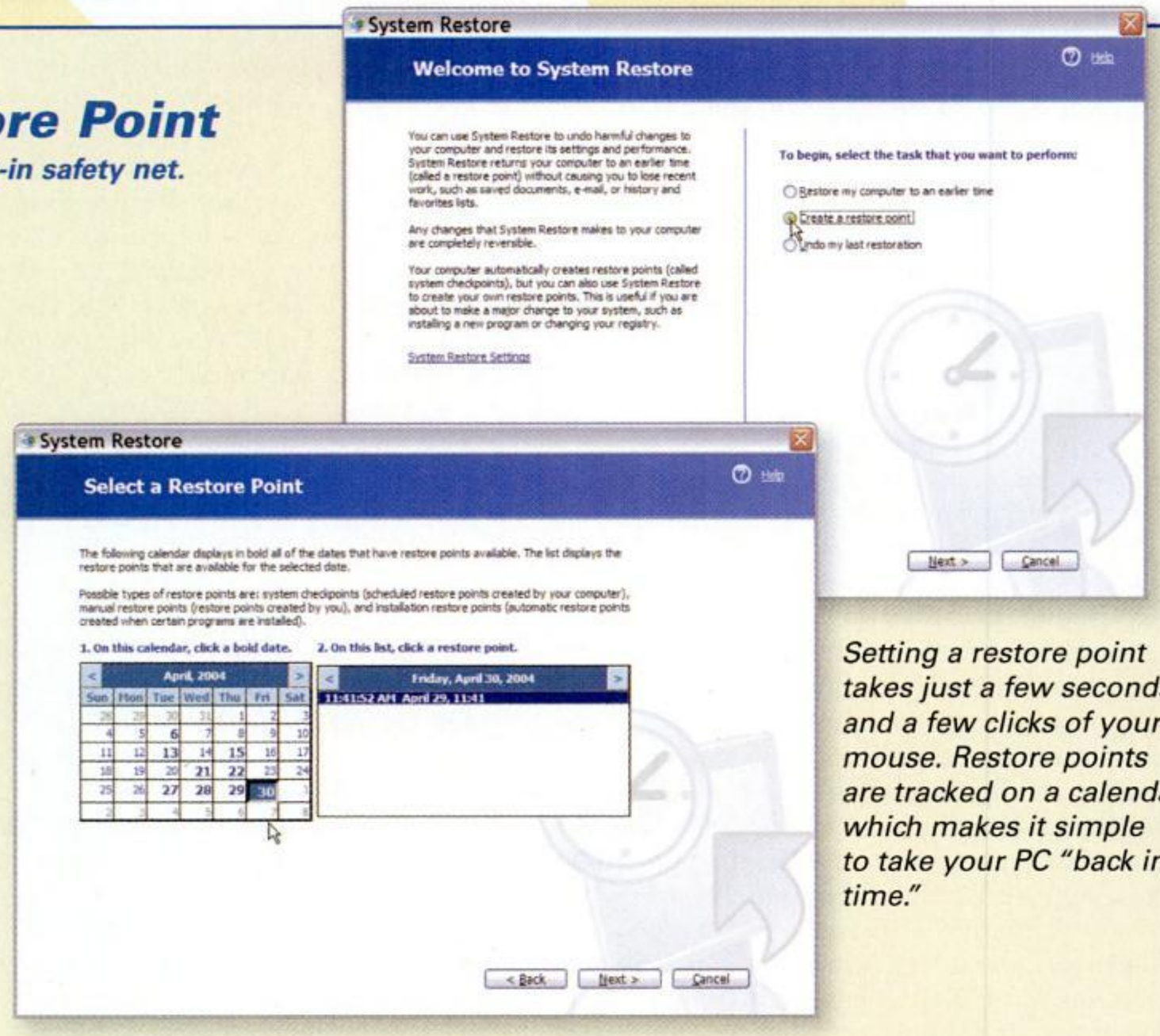
Minimize Outlook to the System Tray

That wasn't tough at all, was it? Good. Here's another quickie that makes XP a bit more efficient if you rely heavily on *Microsoft Outlook*, which most of us do. You can have XP automatically minimize *Outlook* to the System Tray each time you start the program. Browse to HKEY_CURRENT_USER\Software\Microsoft\Office\10.0\Outlook\Preferences. Add a new DWORD value named MinToTray, and set it to 1. Next time you restart *Outlook*, it will automatically minimize to the System Tray.

How to Set a Restore Point

Keep yourself covered with XP's built-in safety net.

Roll your PC back in time, and even take it "back to the future" with XP's built-in System Restore utility. To access it, click Start, Help and Support, System Restore (listed under Additional Resources). Check the "Create a restore point" button, click Next, and then enter a name for your restore point. (Typically, it's a good idea to use the current date and time, or a description that reflects why you're setting the restore point, such as "Before My First Hack.") Now, click Create and you're done. If you get into trouble, just return to the System Restore home menu to select a restore point to activate, or to cancel a previous restoration.


System Restore
Welcome to System Restore
Help
You can use System Restore to undo harmful changes to your computer and restore its settings and performance. System Restore returns your computer to an earlier time (called a restore point) without causing you to lose recent work, such as saved documents, e-mail, or history and favorites lists.
Any changes that System Restore makes to your computer are completely reversible.
Your computer automatically creates restore points (called system checkpoints), but you can also use System Restore to create your own restore points. This is useful if you are about to make a major change to your system, such as installing a new program or changing your registry.
System Restore Settings
To begin, select the task that you want to perform:
Restore my computer to an earlier time
Create a restore point
Undo my last restoration
Next >
Cancel
System Restore
Select a Restore Point
Help
The following calendar displays in bold all of the dates that have restore points available. The list displays the restore points that are available for the selected date.
Possible types of restore points are: system checkpoints (scheduled restore points created by your computer), manual restore points (restore points created by you), and installation restore points (automatic restore points created when certain programs are installed).
1. On this calendar, click a bold date.
2. On this list, click a restore point.
April, 2004
Sun Mon Tue Wed Thu Fri Sat
Friday, April 30, 2004
11:41:52 AM April 29, 11:41
< Back
Next >
Cancel

Setting a restore point takes just a few seconds and a few clicks of your mouse. Restore points are tracked on a calendar, which makes it simple to take your PC "back in time."

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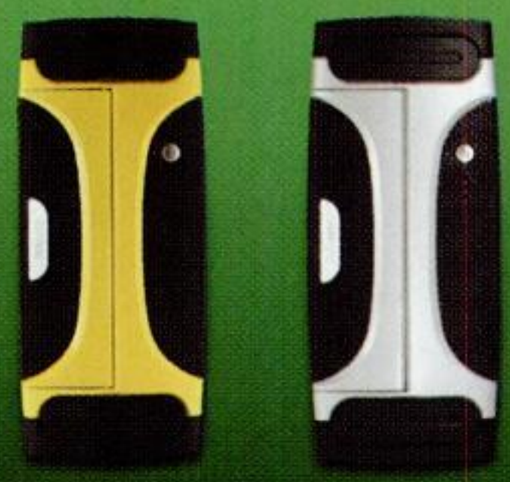

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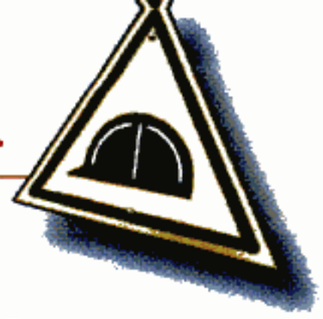


Hack Three:

Improve the Context Menu

So far, so good...and we bet you're starting to have a little fun, too. Nothing brings out your inner geek like editing the Registry. Next, we're going to add "Copy to folder" and "Move to folder" options to the right-click context menu, which should save you a lot of time, if—like us—you move a lot of files around on your PC. Go to HKEY_CLASSES_ROOT\AllFilesystemObjects\shellex\ContextMenuHandlers. Create a new key called "Copy To" and set its value to... deep breath: {C2FBB630-2971-11D1-A18C-00C04FD75D13}. Next, create another new key called "Move To" and set the value to... another deep breath: {C2FBB631-2971-11D1-A18C-00C04FD75D13}. Exit the Registry and the change is immediate. Now, when you right-click a file you'll be able to move or copy the file quickly using the new options.

Hack Four:

Kill Compression

The Disk Cleanup wizard is a handy way to find out what unused files you can get rid of to save disk space, but it also calculates the space you'll save by compressing your drive. We don't like to use compression, so we're going to disable it by browsing to HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer\VolumeCaches\CompressOldFiles. Clear the value from the Default key. The next time you start Disk Cleanup, it will skip the compression analysis.

Hack Five:

Secure Your Pagefile

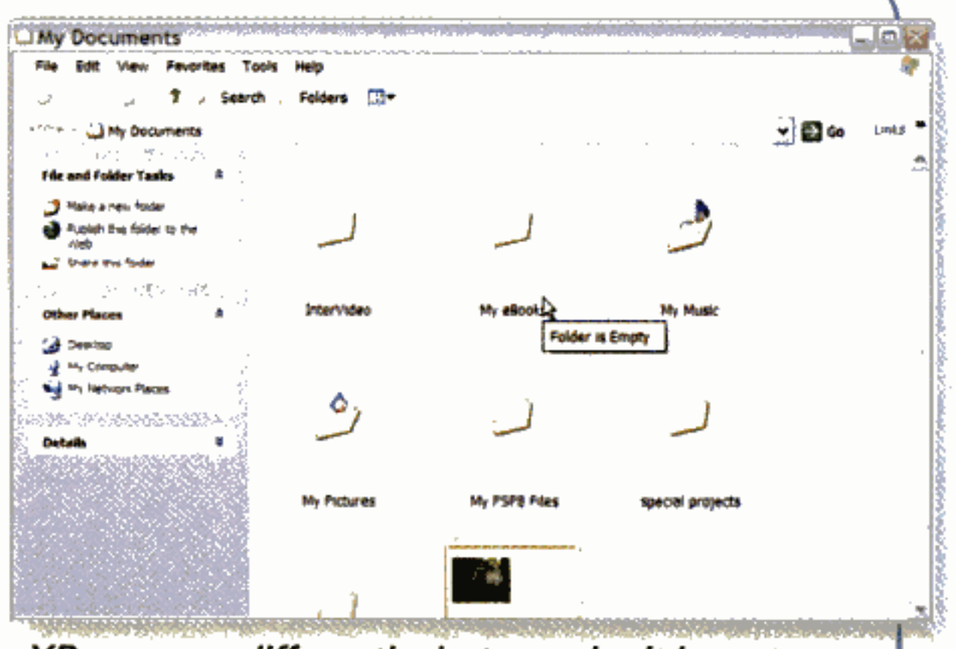
The Windows swapfile (refers to Windows virtual memory, see page 12 for more on the swapfile) can contain anything that might be in RAM, including sensitive data like passwords. To set XP to automatically erase any info contained in the swapfile at shutdown, go to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management and add a DWORD value named "ClearPageFileAtShutdown." Set it to 1, reboot your PC, and your machine will automatically erase the contents of your pagefile when you shut down. Be aware that this will make your PC take longer to shut down, sometimes adding as much as 20-30 seconds to the process. If you find the trade-off's not worth the enhanced security, turn this option off by setting the value to 0 or by deleting the DWORD.

Kill the "My" Folders, Permanently

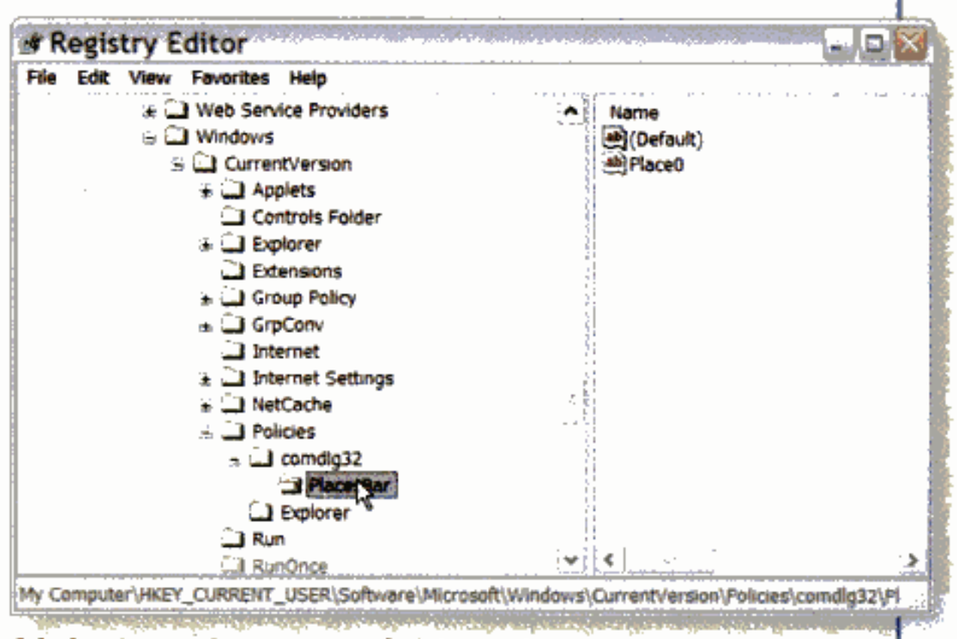
By default, you'll find a "My Pictures" folder in your My Documents folder, as well as My Music, My eBooks (blech!), etc. If you delete the folders as you normally would, they will "magically" appear the next time you start Windows. Annoying, to say the least, but you can do something about it with some hacking trickery. Open your My Documents folder and delete the My Pictures folder. Right-click an empty area, select New, and then Text Document. Name this document "My Pictures" (without a filename extension). Now, right-click your new My Pictures file, select Properties, turn on the Read-only and Hidden options, and you're done. WinXP may *try*, but it won't be able to create the "My Documents" folders next time you boot, because there cannot be two files with the same name in the same directory. Rinse and repeat to cleanse your My Documents folder or the rest of the "My" folders as you see fit.

You also can customize the folders listed in your Open dialog boxes: Whenever you open a file in Notepad or Paint, for example, there's a default list of folders on the left side of the window. Unfortunately, those folders are not that useful for most people. To customize them, point *Regedit* to HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Policies\comdlg32.

Now we're going to get a bit trickier than simply modifying DWORDs and create a new key called "Placesbar." Inside that new key, create a String called "Place0" and point it to the folder you want to appear on the Open dialog, say, C:\Current Work. Create another String called "Place1" and point it to another location on your drive. You can use variables (%USERPROFILE% will point the folder to the profile of a currently logged-in user) or URI's, so you can even use network shares. This hack won't change the same dialogs in *Office*, but if you have *Office XP*, you can add new folders to the Placesbar by going to File, Open, and browsing to the folder you want to add. Once you have it selected, go to Tools and click "Add to My Places." If you have trouble with this route, you can use the PowerToy *TweakUI* to generate the same result—just look under the Common Dialogs options (for more on *TweakUI*, turn to page 78).



XP may say differently, but you don't have to keep the series of "My" folders under My Documents if you don't want them.



Make it easier to use folders the way you want to by customizing the Registry's Placesbar settings.

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Hack Six:

Stop the WMP Recent Files List

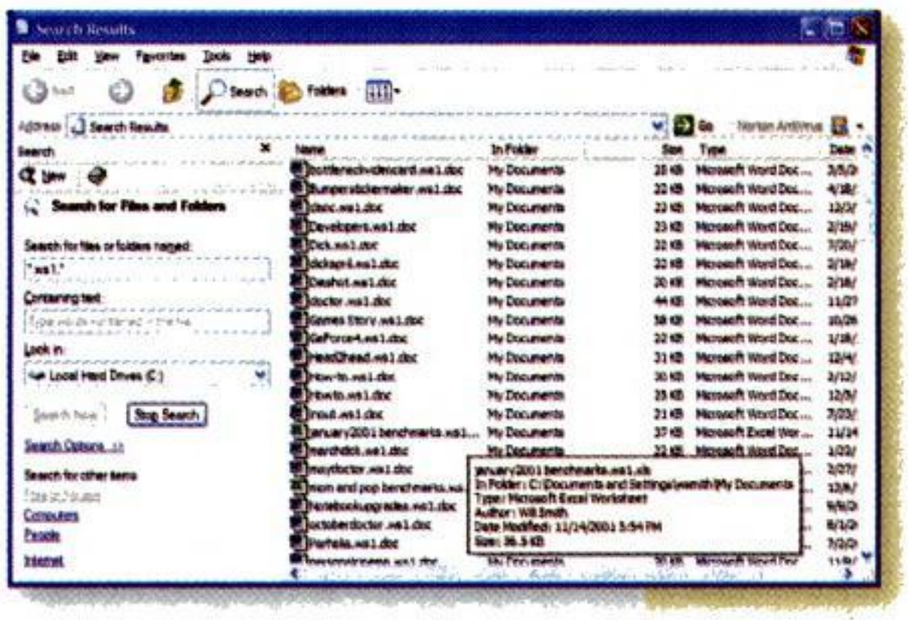
If you want to keep what files you're playing in Windows Media Player a secret—and we can't imagine why—you can use the Registry to kill the "Recent Files" list. Navigate to the HKEY_CURRENT_USER\Software\Microsoft\MediaPlayer\Preferences Registry subkey. From the Edit menu, select New, Binary Value, and enter a name of "AddToMRU," then press Enter. Double-click the new value, set it to 00 to disable the list, or 01 to enable it, then click OK.

You can clear current entries from the most recently played files list by either deleting the HKEY_CURRENT_USER\Software\Microsoft\MediaPlayer\Player\RecentFileList Registry subkey or deleting individual entries under this subkey. To clear streamed media entries, delete the HKEY_CURRENT_USER\Software\Microsoft\MediaPlayer\Player\RecentURLList subkey.

Hack Seven:

Remove Unnecessary DLL's from Cache Memory

Sometimes XP keeps DLLs in cache memory even when the program that required them is no longer running, which can cut down on the memory available to other applications—particularly if your system is memory-deprived to begin with. This simple hack makes XP automatically remove these DLLs during shutdown. Navigate to HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer and create a new DWORD value called "AlwaysUnloadDll." Give it a data value of 1. Exit the Registry and log off or reboot for the new setting to take effect. It should be noted that this setting may cause problems with some Windows programs—especially older 16-bit programs—and may generate error messages when you try to use this software. If so, delete the new key, or give it a value of 0.



Hack Eight:

Reject the Dumb Search Interface

Do you miss the simplicity of the old Windows 98/2000 search utility? Does it make you angry that Windows XP dumbed down your search options and gave you a bothersome Search mascot? Here's how to not only ditch the mascot, but also revert to the original, more powerful search interface.

Open *Regedit* by going to Start, Run, and typing **`regedit`** in the Open box. Then browse to HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\CabinetState\ and create a new String Value called "Use Search Asst." Then set the value to "no".

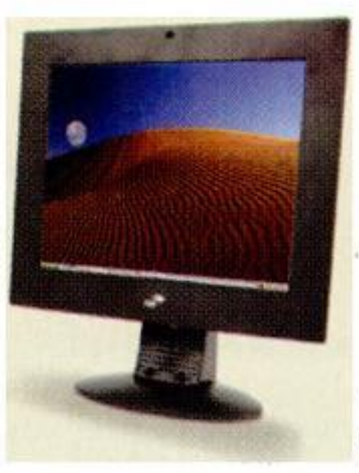
Hack Nine:

Turn off the Windows Picture and Fax Viewer

The *Windows Picture and Fax Viewer* is set as the default image viewer for all sorts of file types in Windows XP. Unfortunately, choosing a new program as the default in the File Types window won't change this, and there's no option in the Windows interface that can disable this component, which is extremely frustrating. Thankfully, we can fix Microsoft's blunder with a Registry hack: Navigate to HKEY_CLASSES_ROOT\SystemFileAssociations\image\ ShellEx\ContextMenuHandlers. Delete the ShellImagePreview key. Close *Regedit* and the change takes place immediately.

Dual Backdrops for Dual Displays

To setup WinXP to use a different desktop image on each monitor in a dual-display setup, try this little hack: As always, be sure to use a high-res image to reduce dithering. Right-click your desktop, then select Properties. Under the Desktop section, select Customize Desktop, then select the web tab. To use an image file located on your hard drive, select New and browse to the file's location. Once you've selected the file you want, click OK and it will appear on your desktop. Drag the image over to the second desktop and, from the image's pull-down menu in the upper left-hand corner, select Cover Desktop. Right-click and select "Arrange By" and "Lock web items on desktop." Now you can select a standard desktop for your primary display and use the web object to cover the standard desktop image on your second desktop with the image of your choice.



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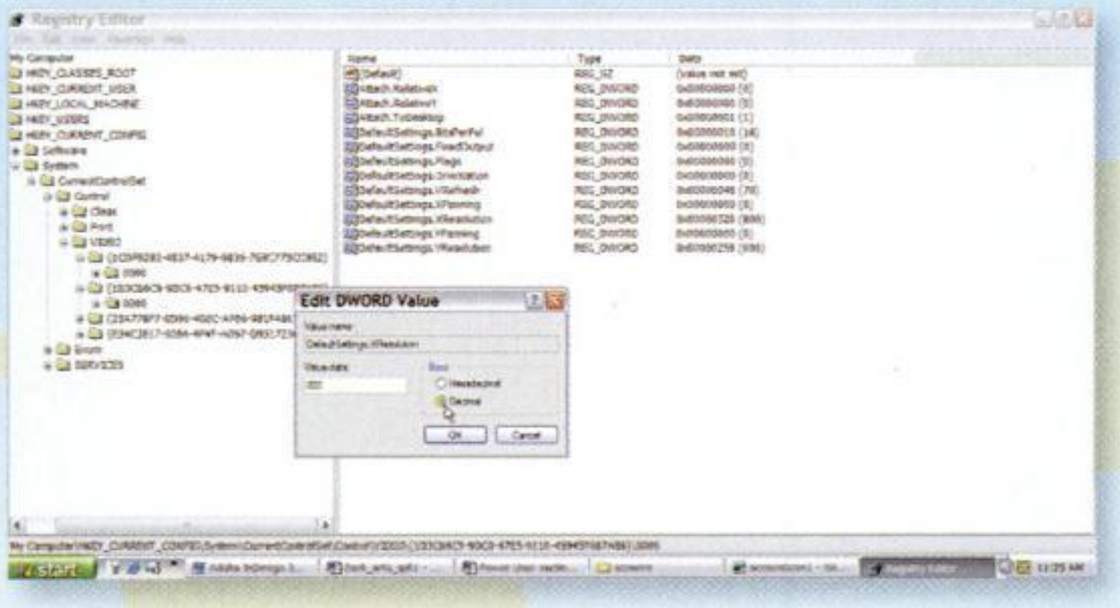
Hack Ten:

Set a Custom Resolution

If you hate being limited to XP's options for your desktop resolution, you can set your desktop to any display size you'd like. Just make sure you don't exceed the min/max recommendations for your videocard and monitor, as you can damage them if you do. Navigate to HKEY_CURRENT_CONFIG\System\CurrentControlSet\Control\VIDEO\{Address of primary video card}\0000\. The DefaultSettings.XResolution DWORD represents the Y axis. Edit its value as a decimal to what you want it to be, such as "1152." Now, do the same to the DefaultSettings.YResolution DWORD, which is the X axis. Edit this value to match your Y setting, "863," in this case. Reboot your machine, and you're done.



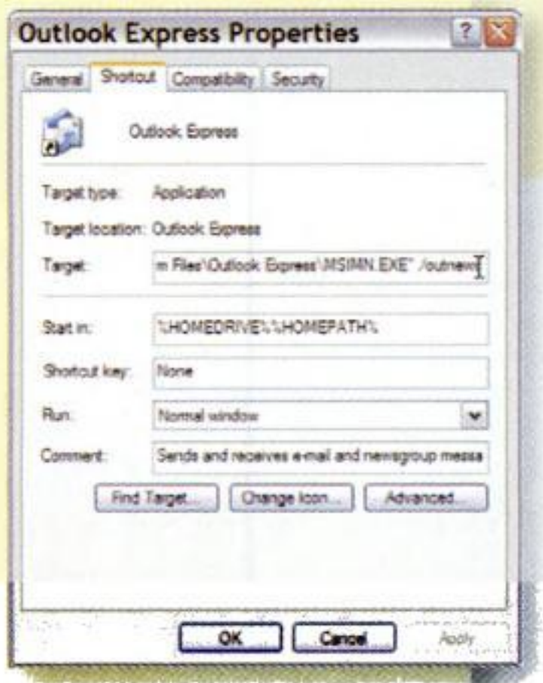
Hack Eleven:

Make Room for More Pinned Programs

As we've said, we love pinning our favorite programs to the Start menu—we just want more room to do it! This hack will kill Microsoft's pushy auto-generating list of Most Frequently Used Programs and give you extra real estate for your own. Go to HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer. Create a new DWORD called "NoStartMenuMFUprogramsList" with a value of "1." Reboot or log off and you'll have a nice big, blank hole to fill with new pinned programs.

Make Outlook Express News-only

To disable the e-mail capabilities within *Outlook Express* you can simply add /outnews to the end of the *Outlook Express* executable command. From the command prompt, type *msimn /outnews*. When you start the application in this mode, you'll notice the Inbox folder is missing and the Mail option under the Accounts menu is no longer available. You also can add the /outnews option to OE's shortcut to accomplish the same feat. Right-click the OE shortcut, select Properties, and change the info in the Target box to: "C:\Program Files\Outlook Express\msimn.exe"/outnews.

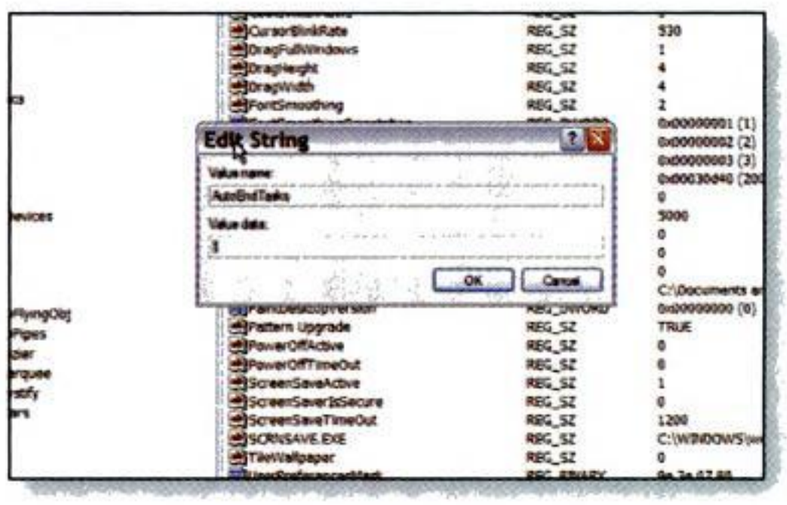


Hack Twelve:

Disable CD Autoplay in XP Home and Pro

Sure, CD Autoplay can be convenient. However, having it on also means WinXP will automatically poll the CD drive at regular intervals, which can result in "hiccups" in video and music playback and even slower level-loading times. Disable this feature permanently via the Registry. Go to HKEY_CURRENT_USER\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Explorer and create a new DWORD called "NoDriveTypeAutoRun." Change the value from "91" to "B1."

In Windows XP Pro it's a bit simpler: Click Start, Run, and type `GPEDIT.MSC`, which will launch the Group Policy editor. Then, go to Computer Configuration, Administrative Templates, System, and locate the entry for "Turn autoplay off." Modify it as you desire.



Hack Thirteen:

Kill Open Programs on Shutdown

How many times have you executed the shutdown sequence for your machine and left the office (or house) only to find it's still running when you get back? And then there's that "friendly" warning dialog box displayed telling you to close all open applications so that XP can shutdown? This happened to us all this all the time, but no longer, thanks to the following hack: Go to HKEY_CURRENT_USER\Control Panel\Desktop. Modify the "AutoEndTasks" key to have a value of "1." If the key doesn't exist, simply create a new DWORD with the same name and a value of 1. To disable this hack, change the value back to "0," or delete the key entirely. ■

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How To Get Old Programs to Run on XP

Have your cake and eat it too by enabling your system to run multiple versions of Windows.

Windows XP has made big strides when it comes to backwards compatibility with programs developed for previous versions of Windows. Often, you can get a particularly stubborn legacy application to run via XP's Compatibility Mode (see sidebar).

However, there are still quite a few programs, particularly games designed for Win98 or Win95, that simply won't run on XP. In this case, you've got three choices:

1. Put the software on the shelf and start your own personal museum.
2. Run a second, older PC with Win95 or Win98 installed, using a KVM switch to share a single monitor, keyboard, and mouse. (See boxout.)
3. Set up a multiboot XP installation.

It can be tough getting older games, such as European Air War, *to run on WinXP. Multibooting can save the day.*

Multibooting XP with Win98

You can install two or more operating systems on your computer, and then choose the one that you want to use each time you boot your machine. This is known as "multibooting."

The first rule of thumb is to install the oldest operating system first, because if you don't, critical system files could be overwritten. And, before you can install a multiboot configuration, you must partition your hard drive. If you already have installed Windows 98, you can partition your drive—without wiping your data—using third party software such as *Partition Magic 8* (on the disc).

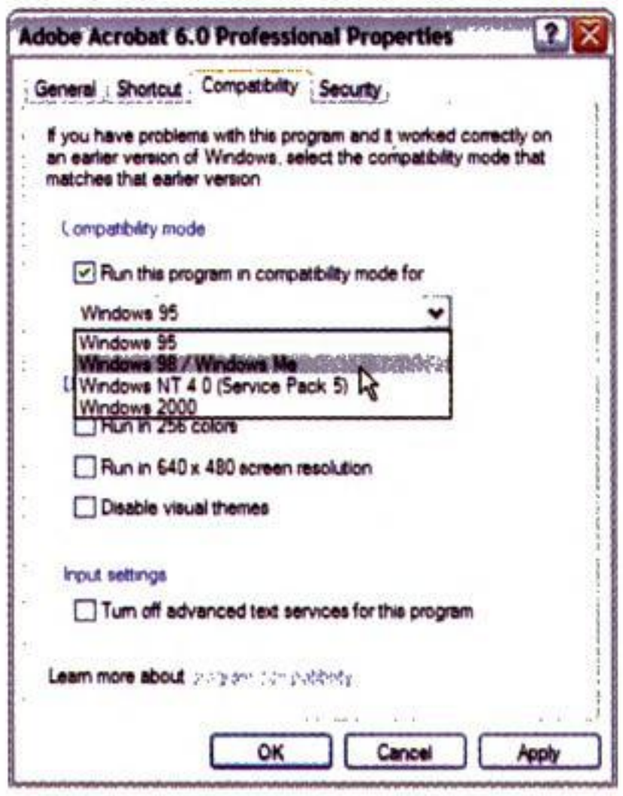
If you're starting from a clean install, you can create multiple partitions that will each function as a separate, logical drive on a single hard drive by choosing Advanced Options during Setup and following the prompts—create one partition for Win 98 and a second for WinXP, which will typically be your C: and D: drives. Partition sizes of at least 10GB each are ideal. (Note: Make sure you have all the drivers you'll need to set up your hardware for each OS *beforehand*, preferably on a CD.) Install Win98 to the C: drive, which must use the FAT 16 or FAT 32 file system, and then WinXP to the D: drive, which should use the NTFS file system. When you want to use your old Windows 98 apps, reboot your PC and select Win 98 from the boot-menu, and you're off to the races.

It's a cumbersome process, but multibooting with WinXP is not that difficult—and the end result of finally getting to run a favorite old game again, such as *European Air War*, is worth it! For more excellent multibooting tips, go to **www.microsoft.com/windowsxp/pro/using/howto/gettingstarted/multiboot.asp.** ■

Easily Use Multiple PCs with a KVM Switch

Most of us have an old PC or two gathering dust in the basement. These make great secondary machines that you can use to run an older version of Windows, such as Win98 or WinSE. You can dramatically reduce required real estate with a device called a "KVM" (keyboard, video, mouse) switch, which will let you use the same keyboard, mouse, and monitor to control both—or even up to four—different systems. Prices typically range from $50 to $200.

KVM switches, such as logear's MiniView III, make it easy to use multiple PCs simultaneously.


Adobe Acrobat 6.0 Professional Properties
General
Shortcut
Compatibility
Security
If you have problems with this program and it worked correctly on an earlier version of Windows, select the compatibility mode that matches that earlier version
Compatibility mode
Run this program in compatibility mode for
Windows 95
Windows 95
Windows 98 / Windows Me
Windows NT 4.0 (Service Pack 5)
Windows 2000
Run in 256 colors
Run in 640 x 480 screen resolution
Disable visual themes
Input settings
Turn off advanced text services for this program
Learn more about
OK
Cancel
Apply

Before you resort to going the multiboot route, make sure to exhaust XP's built-in Compatibility Mode options, as these often can get a reluctant program kick-started.

Compatibility Mode Explained

If the legacy program in question won't even install, navigate to the setup file on the installation CD, usually called "setup.exe," and right-click on it. Select the Compatibility tab, check the Compatibility Mode box, and choose the OS the software was programmed for. Then try launching the set-up program as you normally would. If this doesn't work, try checking the rest of the options offered under the Compatibility tab, one at a time, re-launching set-up after each change.

So what do you do if the program installs just fine, but crashes to the desktop when you try to launch it? In this case, alter the Properties of the program's desktop shortcut the same as you did for the set-up executable. Right-click on the desktop shortcut, select the Compatibility tab, and check the appropriate boxes—you may have to try different combinations before it works. (You also can go online and try a Google search for tips from others who've had similar difficulties getting the same program to run under XP.)

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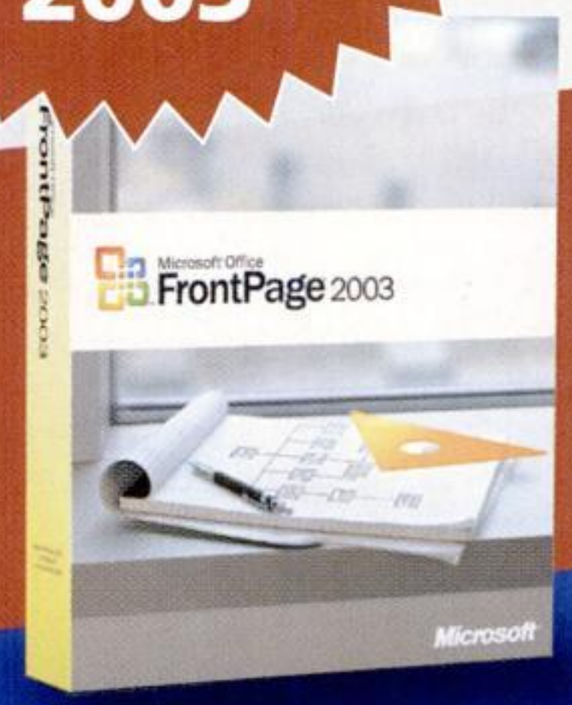

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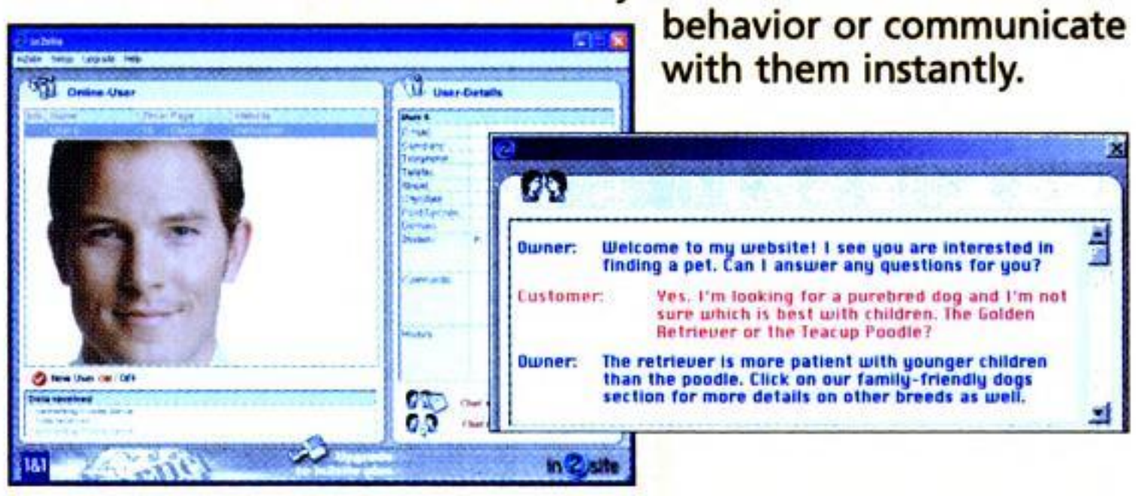
Online-User
User-Details
Owner: Welcome to my website! I see you are interested in finding a pet. Can I answer any questions for you?
Customer: Yes. I'm looking for a purebred dog and I'm not sure which is best with children. The Golden Retriever or the Teacup Poodle?
Owner: The retriever is more patient with younger children than the poodle. Click on our family-friendly dogs section for more details on other breeds as well.
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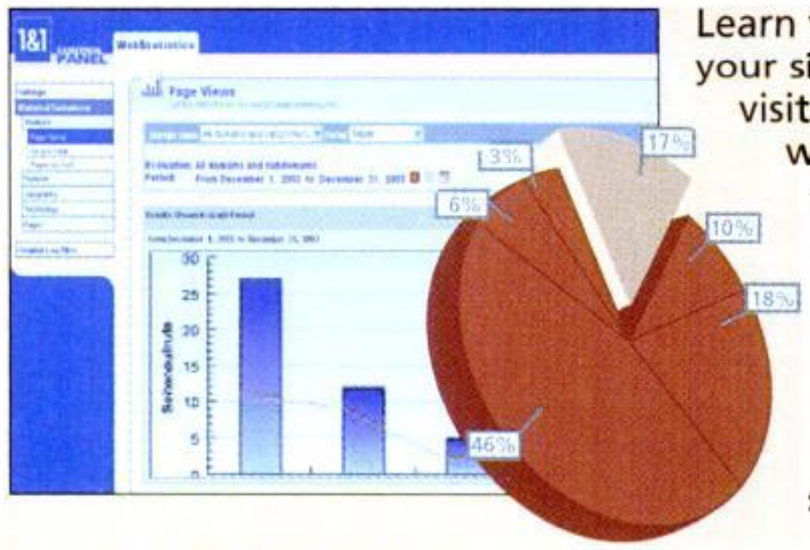

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FTP accounts, unlimited access	1	1
Included bandwidth/month	5 GB	5 GB
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
APPLICATIONS		
1&1 Control Panel	✓	✓
WebsiteCreator	12 pgs	12 pgs
Full version software worth $550	✓	✓
Frontpage 2003	–	✓
E-MAIL		
POP3 e-mail accounts	50	50
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Included virus scanner	1 POP3	1 POP3
WEBSITE FEATURES		
Logfiles	✓	✓
CGI library (counter, guestbook, etc...)	✓	✓
FrontPage 2002 extensions	✓	✓
Password protected directories	✓	✓
CRM/E-COMMERCE		
1&1 WebStatistics	✓	✓
1&1 Chat channel	1	–
Customizable forums	✓	✓
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Subdomains	50	50
WEBSITE/CONNECTIVITY		
Web space	1000 MB	1000 MB
FTP accounts, unlimited access	5	5
Included bandwidth/month	15 GB	15 GB
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
APPLICATIONS		
1&1 Control Panel	✓	✓
WebsiteCreator	12 pgs	12 pgs
Full version software worth $550	✓	✓
Frontpage 2003	–	✓
E-MAIL		
POP3 e-mail accounts	150	150
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Included virus scanner	3 POP3	3 POP3
WEBSITE FEATURES		
Logfiles	✓	✓
CGI library (counter, guestbook, etc...)	✓	✓
FrontPage 2002 extensions	✓	✓
Advanced password protection	✓	✓
Perl, PHP3 and PHP4	✓	–
Database	1 MySQL	MS Access
SSH shell access	✓	–
SSI (Server side includes)	✓	✓
Cron Jobs / Scheduled Tasks	✓	✓
Directory Protection	✓	✓
Shared SSL	✓	✓
Active Server Pages	–	✓
CRM/E-COMMERCE		
1&1 WebStatistics	✓	✓
1&1 Chat channels	5	–
Customizable forums	✓	✓
in2site Live Dialogue	✓	✓
Newsletter Tool	✓	✓
1&1 WebDatabase	✓	✓
1&1 WebElements - Sophisticated Form Editor	✓	✓
EXPRESS SUPPORT		
24/7 support by phone and e-mail	✓	✓

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Point external domains to 1&1	200	200
Subdomains	200	200
WEBSITE/CONNECTIVITY		
Web space	2000 MB	2000 MB
FTP accounts, unlimited access	25	25
Included bandwidth/month	30 GB	30 GB
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
APPLICATIONS		
1&1 Control Panel	✓	✓
WebsiteCreator	25 pgs	25 pgs
Full version software worth $550	✓	✓
Frontpage 2003	–	✓
E-MAIL		
POP3 e-mail accounts	300	300
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Included virus scanner	6 POP3	6 POP3
WEBSITE FEATURES		
Logfiles	✓	✓
CGI library (counter, guestbook, etc...)	✓	✓
FrontPage 2002 extensions	✓	✓
Advanced password protection	✓	✓
Perl, PHP3 and PHP4	✓	–
Database	3 MySQL	MS Access
MS SQL	–	✓
SSH shell access	✓	–
SSI (Server side includes)	✓	✓
Cron Jobs / Scheduled Tasks	✓	✓
Advanced developer tools	✓	–
Dedicated SSL Certificate	✓	✓
ASP, ASP.NET, .NET Framework	–	✓
CRM/E-COMMERCE		
1&1 WebStatistics	✓	✓
1&1 Chat channels	10	–
Customizable forums	✓	✓
in2site Live Dialogue	✓	✓
Newsletter Tool	✓	✓
1&1 WebDatabase	✓	✓
1&1 WebElements - Sophisticated Form Editor	✓	✓
EXPRESS SUPPORT		
24/7 support by phone and e-mail	✓	✓

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PowerToys for Power Users

Don't have the time or desire to get your hands dirty messing with XP's innards? Microsoft's *PowerToys* will give you a high degree of customization options, without the mess.

No section on being a "power user" would be complete without mentioning Microsoft's own suite of nine software tools, known collectively as "PowerToys," which put a great deal of customization options in your hands. Released with each version of Windows, PowerToys for XP are available for download at **http://www.microsoft.com/windowsxp/home/downloads/powertoys.asp**. There's no charge for the download, just don't go asking MS for any PowerToys tech support—it doesn't provide it. Don't let that dissuade you from trying PowerToys out. XP's PowerToy lineup includes some of the handiest Windows utilities we've seen yet.

TweakUI

First and foremost is an excellent new version of *TweakUI*, which we've mentioned a few times already in this magazine. *TweakUI* is a small-but-powerful program that lets you change many Registry settings without having to get down and dirty with *Regedit*, which can be scary. Essentially, it lets you unlock many of XP's hidden Registry features via a very simple point-and-click interface. And, you can use it to easily reconfigure many of XP's default UI and program settings. For example, you can use it to set which icons appear in the Start menu and on the desktop—it puts all the options in one place for you to pick and choose. You can use it to set how long the buttons in the Taskbar flash orange trying to catch your attention, or to tweak cursor shadows and menu fading. You can even use it to prevent programs from appearing on the Recently Used list in the Start menu. If you're only going to use one PowerToy, make it *TweakUI*.

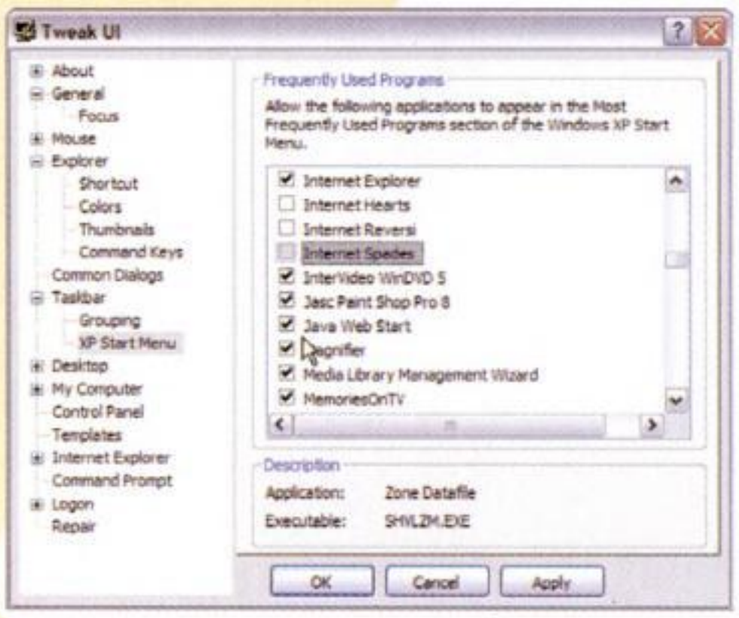
Give your desktop a 4X facelift with the Virtual Desktop Manager *PowerToy.*

Virtual Desktop Manager

Next up is the *Virtual Desktop Manager* Powertoy, which gives you the power to wield not two, not three, but four virtual desktops on a single monitor. So, if you don't have the desktop real estate for a true multimonitor display, which we outlined for you on page 20, give it a whirl. Each desktop features a copy of the Start menu, desktop, and taskbar—and each virtual desktop can be used to run different applications simultaneously. This is a great way for budding power users to strut their stuff and organize groups of open apps into their own desktops for fast switching amongst them all. For instance, you could have your *Office* apps open on one desktop, email apps on another, web pages on the third, and *Tetris* on the fourth.

Just right-click the Taskbar and select Toolbars>Desktop Manager to launch the Virtual Desktop Manager. A new toolbar, entitled MSVDM, will be added to the Taskbar, and you can use it to switch between the virtual desktops, which are numbered 1 through 4. Pretty cool, huh?

Use TweakUI *to par down XP's default file templates to reduce desktop clutter.*



TweakUI *makes it easy to customize your Start Menu programs.*

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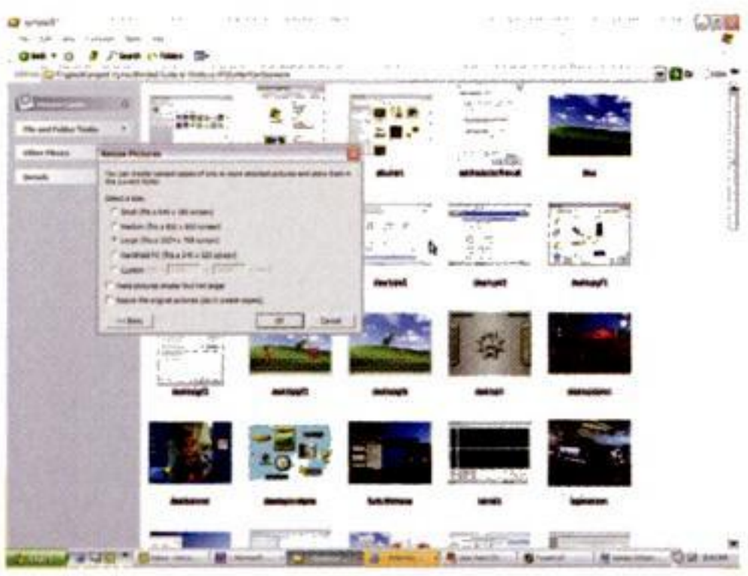
Like to have lots of open apps on your desktop at once? The Alt-Tab Replacement toy makes it easier to find the one you want.

Alt-Tab Replacement

We used to think the default ALT+TAB application switching device built into XP was fine, until we saw this toy. *Alt-Tab Replacement* does exactly what the name implies—it replaces XP's default method with a one that gives you a thumbnail preview of all open applications in the task list. Just hit ALT+TAB as before, and continue to hit TAB while holding down the ALT key to select the app you want, then release ALT. Simple. However, if you've got an older PC that has its hands full just running XP you might want to give this toy a pass—generating and displaying the thumbnail images can bog down your system. For owners of newer PCs though, it's a definite plus.



Finding it a pain to resize all those pics o' the kids for your web site? Image Resizer makes it painless.

Image Resizer

Digital cameras are great, but resizing your pics for use on the web, email attachments, or to display on your PDA can be an extremely tedious, time-consuming chore. It may not be the most sophisticated tool for the job, but the Image Resizer PowerToy is free and it's very adept at resizing groups of images efficiently. Resizer works similarly to the "Send Pictures via Email" options already built-in to XP, but it ads the ability to process batches of images at the same time. Resized images are generated with filenames that are similar to the original image's and include a designation that denotes the new size, such as "medium" or "WinCE," which makes it easier to organize them in your folders.

CD and HTML Slide Show Generators

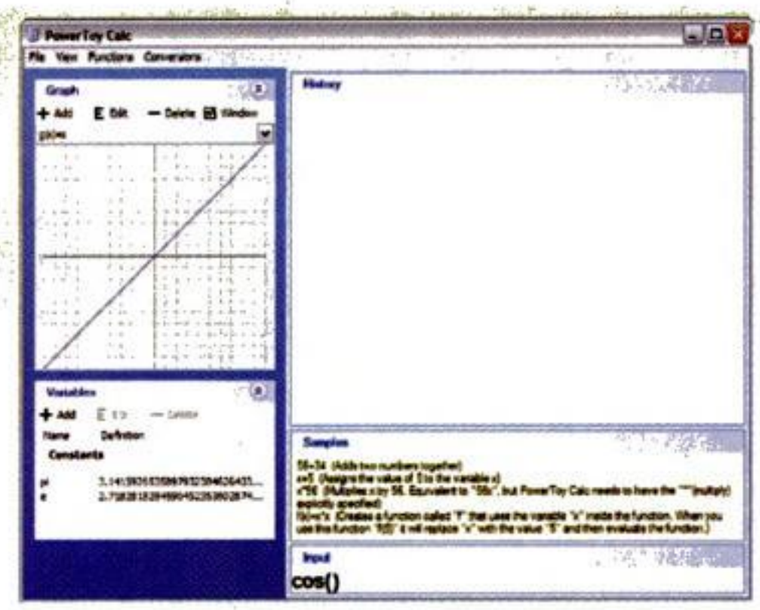
This is another tool that digital photo buffs are sure to find useful, particularly when it comes to sharing pics with Grandma and Grandpa out in Kansas who just got a new computer. Really two tools in one, the *CD Slide Show Generator* integrates into XP's CD recording wizard and adds the option to add a picture viewer to image-only CDs, which means Grandma and Grandpa can just pop the CD into their PC and view the slideshow, wheter it's running XP or not. Similarly, the *HTML Slide Show Generator* makes creating picture albums for display on the web a simple process.

Open Command Window Here

This toy is a shell enhancement, and an update to an old favorite. It adds an "Open Command Window Here" context menu item, which you access via right-clicking, to folders in My Computer or Explorer. If you never use the command line, you can ignore this toy. If you do, it's a must-have.

Power Calculator

While most of us might not care about it, the *Power Calculator* is a beefy alternative to XP's default tool that will please college students—particularly those equipped with laptops and take trigonometry. It lets you graph and evaluate functions, as well as perform many different types of conversions than the puny default XP calc can perform.



Make your PC extra-nerdy with the graphical calculator functions of the new, mighty Power Calculator.

Taskbar Magnifier

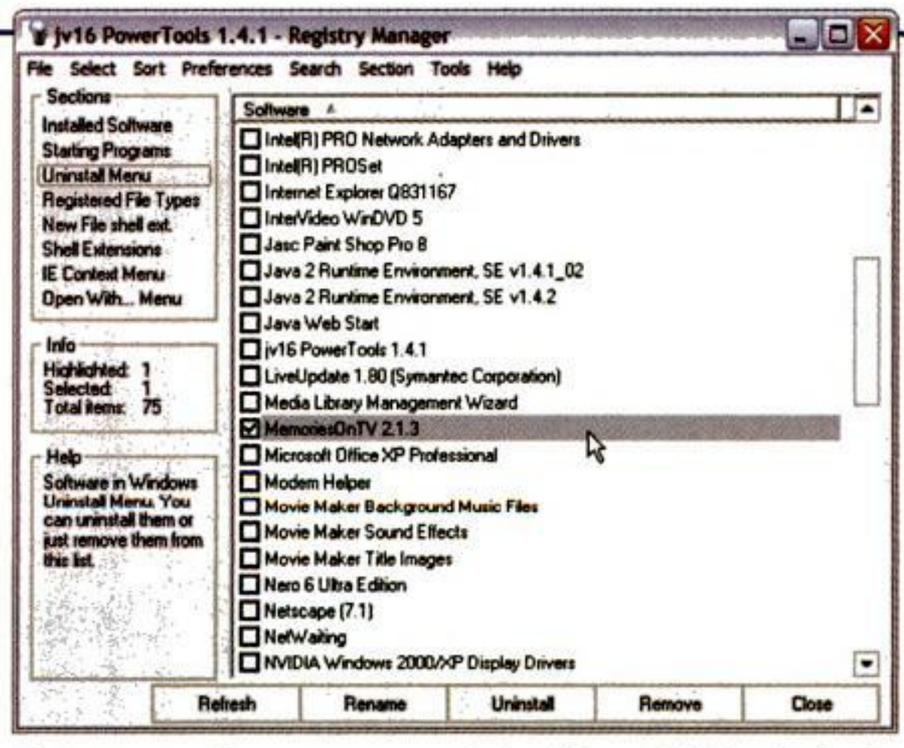
Similar to the Magnifier tool that ships with Windows XP (Start>All Programs>Accessories>Accessibility) Taskbar Magnifier provides screen-magnification capabilities, but is relegated to the Taskbar, which can often be difficult to read at higher desktop resolutions.

Webcam Timershot

This tool can capture pictures from a web camera at specific intervals and automatically save them to custom locations such as an FTP or web site. It also can perform other useful duties, such as resize the images. ■

Not the Only Power Game in Town

Microsoft's not the only player when it comes to making handy XP-tweaking tools. One of our favorite third-party utilities for Windows, *RegCleaner*, has been updated for Windows XP in the form of *JV16 PowerTools*. This software suite cleans up duplicate files, invalid shortcuts, and general Registry clutter – and it can be used to remove stubborn software, which you might have deleted without "uninstalling," from the Add/Remove programs list. It's not freeware, but the trial version is on the disc. So give it a whirl and decide for yourself if it's worth the 30 clams. Find out more at **http://www.jv16.org/**.



If there are features you wished TweakUI *included, you'll likely find them in PowerTools.*

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Tech Terminology Cheat Sheet

Complex Computer Lingo Explained

What the Heck is That?

If you've got a connection to the Net, you've got a rich supply of resources to draw on to define just about any computer-related term or question that might have you stumped. One of our favorites is **www.whatis.com**, and its name says it all.

http://whatis.techtarget.com/
LOOK IT UP
Search
Advanced Search
Browse alphabetically:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #
Browse for definitions in these categories:
Software
Applications, Database, Operating systems
Internet
Internet Technology Terms, Internet Acronyms & Lingo, Internet Applications & Email
Computing Fundamentals
General Computing Terms, Standards & Organizations
Hardware
General Hardware Terms, Electronics, Microprocessors
PCs
Personal Computers & Mobile Computing, Multimedia & Graphics, Peripherals
Networking
Network Hardware, Network Software, Security
Telecom
Circuit Switched Services Equipment & Providers, Local Loop/Access Network, Wireless & Mobile Networking
Check our most popular fast references:
TECH HAPPENINGS:
What's New
WORD OF THE DAY...
black hole
LEARN MORE ABOUT...
Harvard Business School IT publications
Make Whatis.com your home page
Secret Word of the Day
Learning Guide: A security policy primer
Looking for a new tech job?
May Horoscopes for Geeks
Site Map for whatis.com
Recently added/updated

It may not be pretty, but whatis.com is a veritable treasure trove of answers to technical questions.

BPS—Bits Per Second

This is the current term used for measuring modem speed. Most modems today run at 56,000 bps.

Cache

A stored collection of recently used files kept in faster memory, such as RAM, so that they'll open more quickly the next time you open them.

Encryption

The acto of coding sensitive information, such as e-mails or credit-card data, so that it cannot be deciphered without special "decryption" software.

Firewall

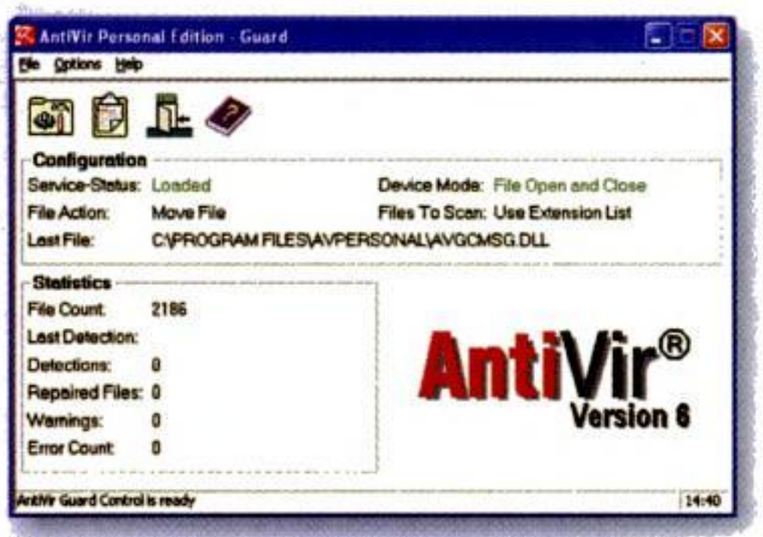
A protective software "shield" that prevents unauthorized access to a standalone PC or network of PCs connected to the Internet.

Freeware

Free software you can find on the Net, or on CDs bundled with magazines. It's copyrighted by the authors, but they've chosen to give it away for free.

Heuristic Detection

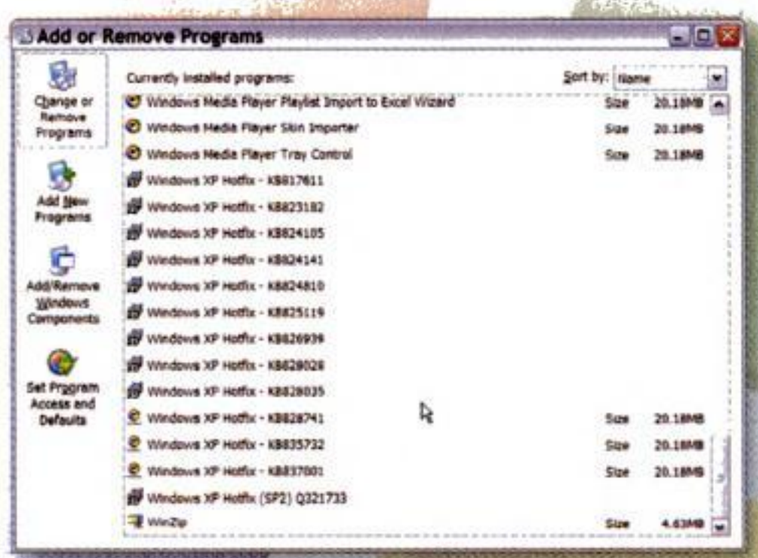
Refers to a method of solving problems by intelligent trial and error. Antivirus programs typically use the technique to search for viruses on your PC.



Virus-hunting programs such as AntiVir *employ heuristic methods to search for known viruses on your PC.*

Hotfix

An urgently needed update or patch for a software program or operating system. Microsoft bundles large, operating system-wide changes into its Service Packs. Small issues are patched with "hotfixes" between the release of these major overhauls.


Add or Remove Programs
Currently installed programs:
Sort by: Name
Change or Remove Programs
Add New Programs
Add/Remove Windows Components
Set Program Access and Defaults
Windows Media Player Playlist Import to Excel Wizard
Windows Media Player Skin Importer
Windows Media Player Tray Control
Windows XP Hotfix - KB817611
Windows XP Hotfix - KB823182
Windows XP Hotfix - KB824105
Windows XP Hotfix - KB824141
Windows XP Hotfix - KB824810
Windows XP Hotfix - KB825119
Windows XP Hotfix - KB826939
Windows XP Hotfix - KB828028
Windows XP Hotfix - KB828035
Windows XP Hotfix - KB828741
Windows XP Hotfix - KB835732
Windows XP Hotfix - KB837001
Windows XP Hotfix (SP2) Q321733
WinZip
Size 20.18MB
Size 4.63MB

Microsoft releases small patches called "hotfixes" for WinXP—do you have them all? Get 'em through Windows Update.

Kernel

The kernel is the essential center of a computer operating system, the core that provides basic services for all other parts of the operating system.

Latency

The time lag, typically measured in milliseconds, between the beginning of a request for data and the moment it begins to be received.

Recovery Console

A software program included on the Windows XP installation CD-ROM that gives you direct access to the file system without starting the graphical user interface. The Recovery Console can be accessed by booting from the Windows CD and hitting F10 at the welcome screen, then pressing R.

Registry

A central hierarchical database maintained by WinXP to store configuration information. The Registry has information Windows continually accesses during operations, such as what types of applications are installed on the computer. You can edit the contents of the Registry to alter how your computer operates.

Router

A device that directs traffic between networks of computers. Routing is the process of deciding what path information will take when traveling over a computer network.

Spam

The electronic version of junk mail.

Task Manager

A software feature that allows the user to list and, if necessary, shut down applications and processes that are currently running. The Task Manager can be accessed by hitting Ctrl-Alt-Delete on Windows XP.

Virtual Memory

A way of using hard disk space to make the computer work as if it had more physical memory (RAM). When a file or program is too big for the computer to run it in physical memory, part of the data is stored on a section of the disk that acts just like RAM. This "virtual storage" is divided into segments called "pages"—also known as "swap files"—each page has an address that corresponds to a location in physical memory. When an address is referenced, the page is swapped into physical memory, then sent back to disk when other pages must be called. The program runs as if all the data is in physical memory. ■

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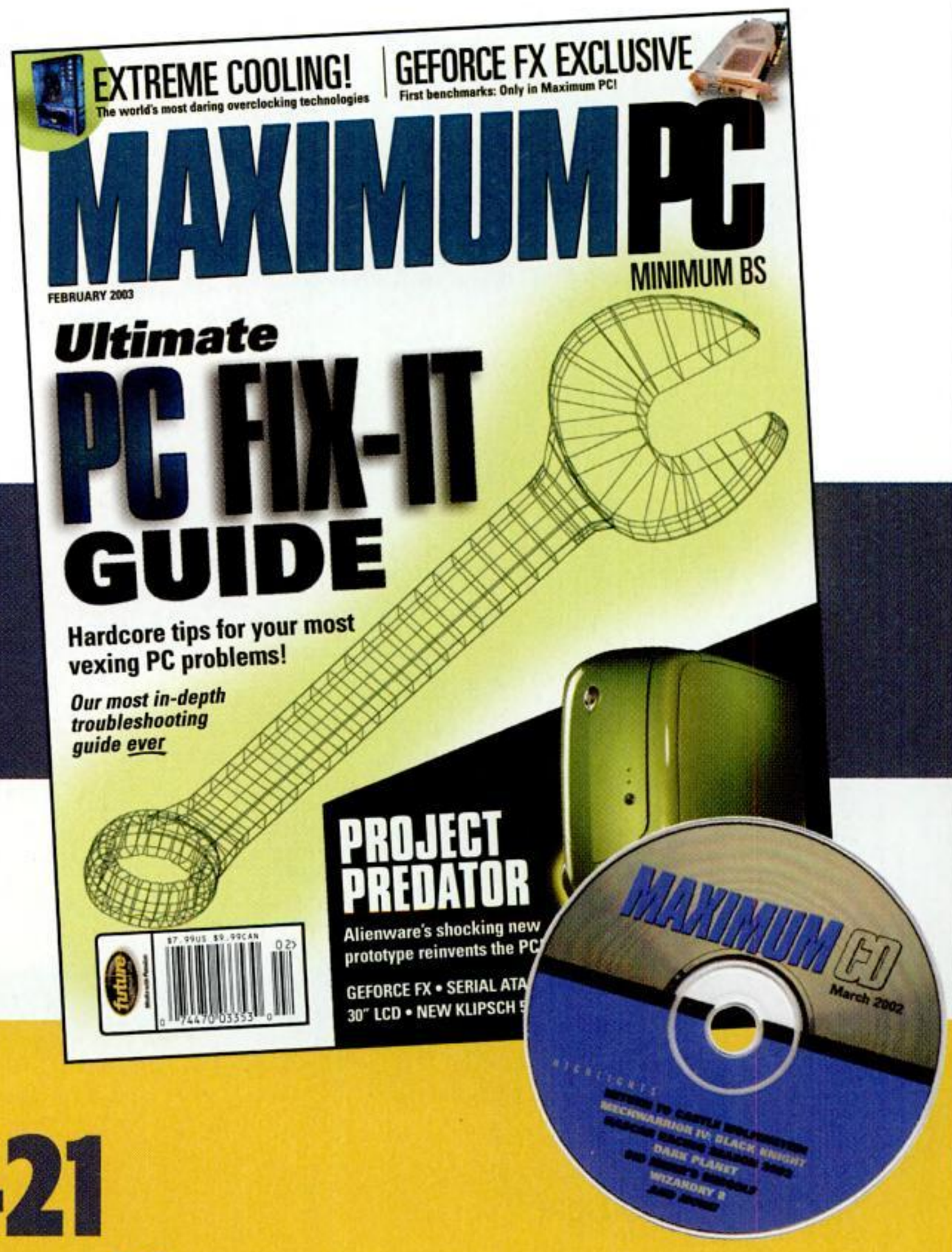

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XP Troubleshooting Secrets

How to fix your OS woes using XP's built-in troubleshooting and diagnostic tools

BY SCOTT MUELLER

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Your car has, oh, about 50,000 individual parts. That's 50,000 opportunities for something to go wrong, and 50,000 guesses at what your problem might be.

Windows XP, on the other hand, has more than 45 million lines of code. If you think of these lines as "parts" within the OS, and consider that these "parts" are often altered by apps you install or corrupted by disk failures, brownouts, or bad juju, then you can see why your system goes awry so often.

Fortunately, getting WinXP back up to speed is a lot less expensive and painful than doing the same with your comparatively simple automobile. That's because Microsoft includes error-reporting features, diagnostic programs, and utilities that can help you root out the cause of a system snafu—all before resorting to the dreaded reinstall (which you no longer need to fear, if you read our instructions on page 36).

We're going to show you how to decode the error messages left behind by Windows XP after it crashes, and explain how to use the tools built into the OS to become your own mechanic. You'll be diagnosing problems, recovering from system mishaps, and maintaining a working machine in no time.

What Is Windows XP Trying to Tell Me?

The most serious PC problems are caused by corrupt files and buggy software, as well as defective or incorrectly configured hardware. These problems often result in a STOP or Blue Screen of Death. The resulting "screen dump" is a frustrating and cryptic string of letters and numbers. But often these messages can be decoded to provide some useful information. For example, say you're working on a system that STOPs (blue-screens) with the following message:

```
STOP: 0x0000002E
(0x00699F11, 0x04EBD77F,
0x00000000, 0x80ADD9C8)
DATA_BUS_ERROR
```

The best thing to do when you get a STOP or blue-screen error like this one is to look up the error code (the first string of letters and numbers after STOP:) in the Microsoft Knowledge Base at http://support.microsoft.com. There you'll find articles that will help you decode the specific error you're receiving, and helpful information about troubleshooting the problem.

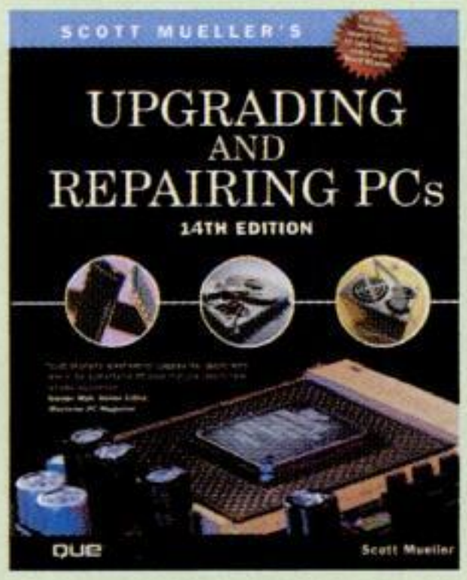
The Knowledge Base tells us that the 0x0000002E code indicates a parity error detected in memory. An error like this is normally caused by problems with memory, but can also be caused by other hardware such as a videocard, a failing hard disk, a boot sector virus, or even a defective device driver. The message in our example includes four parameters (in the parentheses) that provide valuable information. The parameters for this error are decoded as follows:

- *Virtual address of the fault (0x00699F11)*
- *Physical address of the fault (0x04EBD77F)*
- *Processor Status Register contents (0x00000000)*
- *Faulting Instruction Register contents (0x80ADD9C8)*

Of these, the second one (the physical address) is the most useful, as it indicates the exact location in memory where the fault occurred. In this case, the address is 0x04EBD77F, which is a hexadecimal number that translates to 82,564,991 in decimal, which if you divide by 1,048,576 (number of bytes in a megabyte) places the error at 78.74 as a megabyte address, which is the same as saying the error is in the 79th megabyte (addresses start with 0). If you have two 128MB DIMMs in the system, then this places the error in the first bank of the two installed.

Now if this error reoccurs, and the address is the same every time, then the problem is most likely the memory module, which should be replaced. If the error reoccurs but the address is always different, then I would suspect other hardware or software in the system instead of just the memory modules.

While not all STOP errors utilize the parameters in the same manner, the first place to start is always the Microsoft Knowledge Base. Hey, they're the ones that came up with these codes in the first place!



ABOUT THE AUTHOR

Scott Mueller is the author of Upgrading and Repairing PCs, *now in its 14th edition. This 1,600 page, "Geek Tested and Approved" manual is a favorite reference among the* Maximum PC *editors.*

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Better Living through Device Management

The Device Manager is the software component of the plug-and-play standard, and it should be the first place you look if you're having problems installing a new piece of hardware, or to resolve conflicts between devices. You can use Device Manager to see a graphical view of the hardware that's installed in your computer, get detailed listings of resource usage, update hardware device drivers, change settings, and troubleshoot problems. To open Device Manager, select Start > Control Panel > Performance and Maintenance > System. On the Hardware tab, select Device Manager.

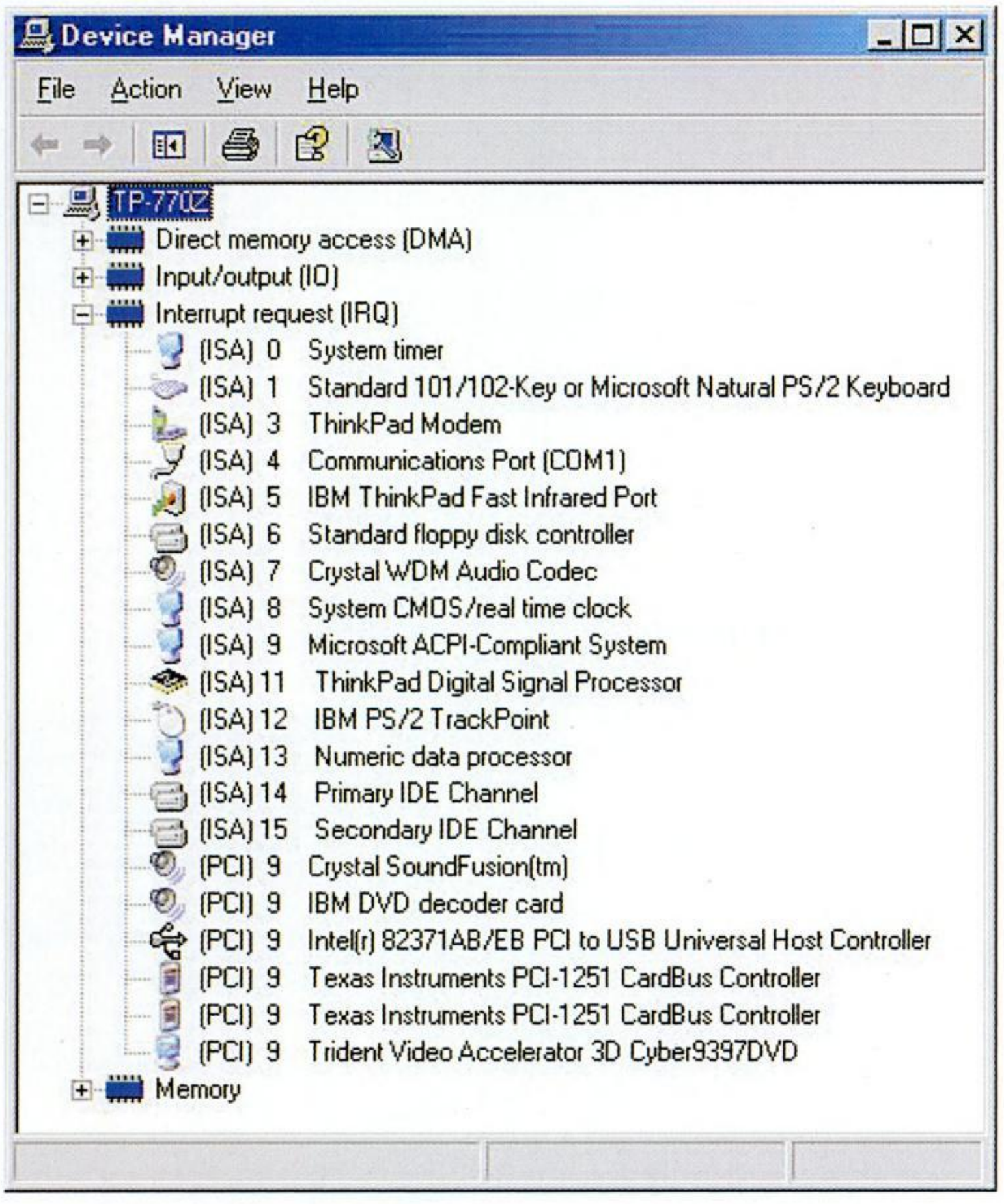
The primary uses for Device Manager include:

- *Check to see if the installed hardware is recognized and working properly.*
- *Change hardware resource configuration and device settings.*
- *Identify installed drivers.*
- *Install updated drivers.*
- *Enable, disable, or uninstall hardware devices.*
- *Roll back to a previous driver version.*
- *Print a summary of the devices that are installed on your computer.*

Normally, the automatic plug-and-play features in Device Manager will properly configure all the installed hardware in such a way that there are no conflicts. This is especially true in newer systems running WinXP. It's rare that you'll need to manually edit or modify the resource allocation of devices. In general, the settings should be left on automatic. By setting resources manually, you risk causing problems, and your system may even lock up. If that happens, try starting in Safe mode: Reboot the PC, and hold down the F8 key while the system restarts to access the Safe mode option, then open the Device Manager and reset everything back to automatic. Once you restart, the plug-and-play routines will take over and should resolve any critical conflicts.

Another useful feature of the Device Manager is that it lets you see resource usage at a glance. For example, to check for any IRQ resource conflicts, go to the View menu, select Resources by type, and then click Interrupt Request.

An IRQ is a signal that a device uses to gain the attention of the processor. Most all devices that communicate data to and from the system will require an IRQ, since they will need to request the attention of the processor as data comes in. Without this type of design, buffers on the device may overflow before the processor decides to check to see if the device needs attention. Older ISA bus devices can't normally share IRQs, while PCI devices can share them. Problems can occur if you have a lot of older ISA bus devices in a system, since there are only 16 total IRQs, and many of them are reserved for specific uses. In my system, there's only one free IRQ (IRQ 10), meaning I can add only one more ISA bus device before I'll have allocation problems. On the other hand, I can add more PCI-based devices because they can all share IRQ 9. Note that the PCI bus is designed to remap shared IRQs (called IRQ steering), so having multiple devices on a single IRQ doesn't present a problem.


Device Manager
File Action View Help
TP-770Z
Direct memory access (DMA)
Input/output (IO)
Interrupt request (IRQ)
(ISA) 0 System timer
(ISA) 1 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
(ISA) 3 ThinkPad Modem
(ISA) 4 Communications Port (COM1)
(ISA) 5 IBM ThinkPad Fast Infrared Port
(ISA) 6 Standard floppy disk controller
(ISA) 7 Crystal WDM Audio Codec
(ISA) 8 System CMOS/real time clock
(ISA) 9 Microsoft ACPI-Compliant System
(ISA) 11 ThinkPad Digital Signal Processor
(ISA) 12 IBM PS/2 TrackPoint
(ISA) 13 Numeric data processor
(ISA) 14 Primary IDE Channel
(ISA) 15 Secondary IDE Channel
(PCI) 9 Crystal SoundFusion(tm)
(PCI) 9 IBM DVD decoder card
(PCI) 9 Intel(r) 82371AB/EB PCI to USB Universal Host Controller
(PCI) 9 Texas Instruments PCI-1251 CardBus Controller
(PCI) 9 Texas Instruments PCI-1251 CardBus Controller
(PCI) 9 Trident Video Accelerator 3D Cyber9397DVD
Memory

If you look at the Device Manager for our system, you'll see a number of devices sharing IRQ 9, for example, since all of those devices are PCI based.

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Getting the 411 from System Information

WinXP includes a powerful System Information utility that can display system configuration information for both local and remotely connected computers. To run System Information, select Start > Programs > Accessories > System Tools > System Information. The main display in the System Information program includes the following categories:

- *Hardware Resources (similar to Device Manager)*
- *Components (hardware)*
- *Software Environment (installed drivers, programs, services)*
- *Internet Settings*

System Information will not only display the information on the screen, but it can also save or print a complete report about your system. This can be very useful if somebody is helping you troubleshoot the system remotely. By sending along the file or printout, the troubleshooter will have a lot of important information about your system that may be useful in diagnosing a problem. System Information can also be used as a launching point, from the Tools menu, for several other valuable utilities that are described in the following sections.

Network Diagnostics

Network Diagnostics is designed to collect and display information about your hardware, operating system, Internet browser and e-mail program configurations, modems, and network cards. It should be your first stop in diagnosing "connectivity" problems, and will often point you directly to the culprit.

System Restore

System Restore is a very useful tool that's designed to store and track changes made to your system. WinXP will normally create what's called a "restore point" automatically whenever you install new hardware, drivers, or software. You can also use the tool to manually create restore points anytime you like. This is similar to how many game programs allow you to save your current position, so if you "die" in the game, you can reset to the previously saved position rather than having to start over. In working with PCs, this can be a valuable timesaver. Once restore points are created, you can use the System Restore program to restore your computer to an earlier state.

File Signature Verification

The system files and drivers provided with Windows XP have a special digital signature by Microsoft, which indicates that they are original, unaltered files that have been approved by Microsoft for use with Windows. Problems can arise when installing new software or drivers on your computer, as in some cases your original files can be overwritten by unsigned or incompatible versions.

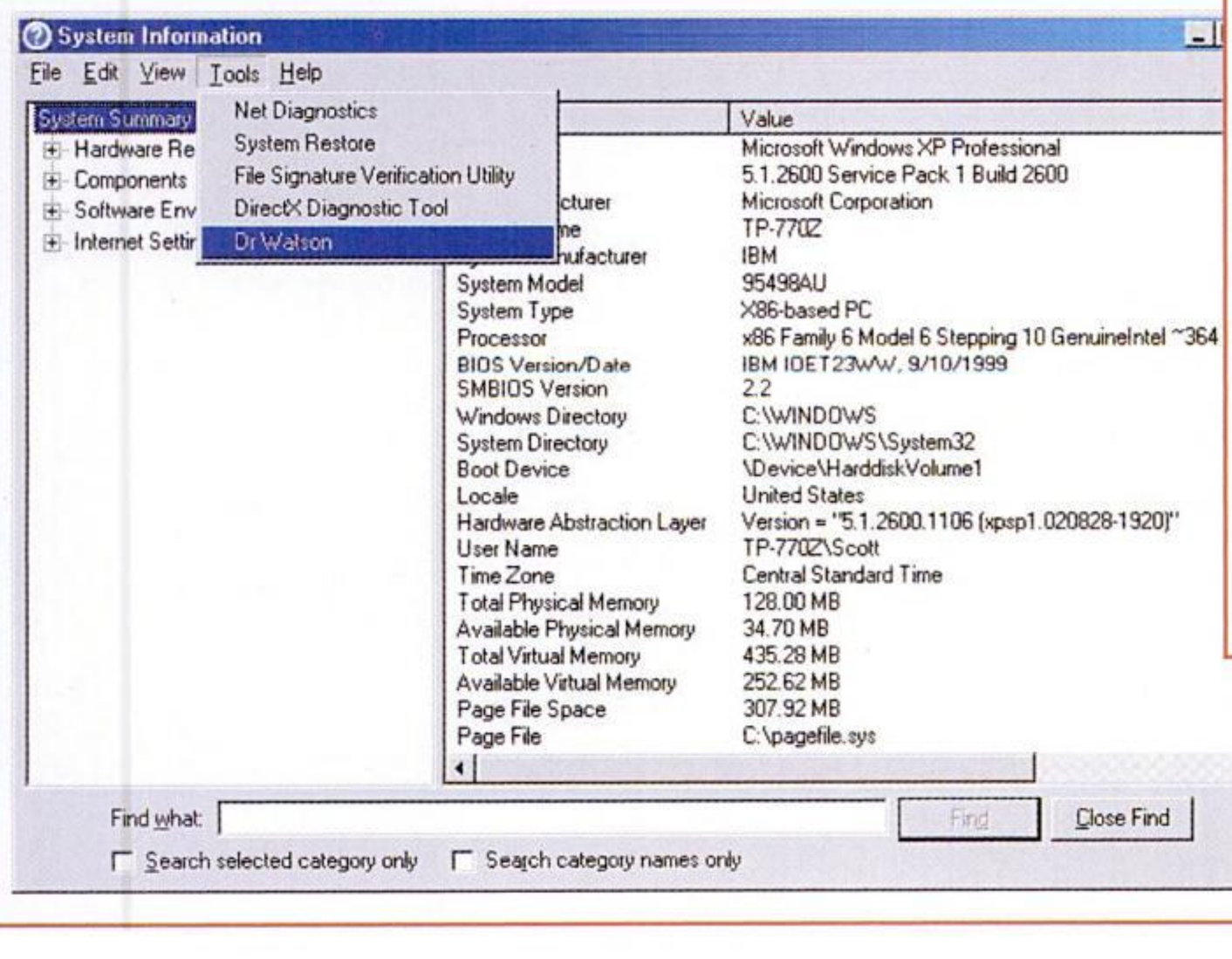
To check for problems with critical files, Windows XP provides the File Signature Verification utility, which is designed to identify and display the following information for any unsigned files on your system:

- *Filename*
- *Location*
- *Modification date*
- *Type*
- *Version number*

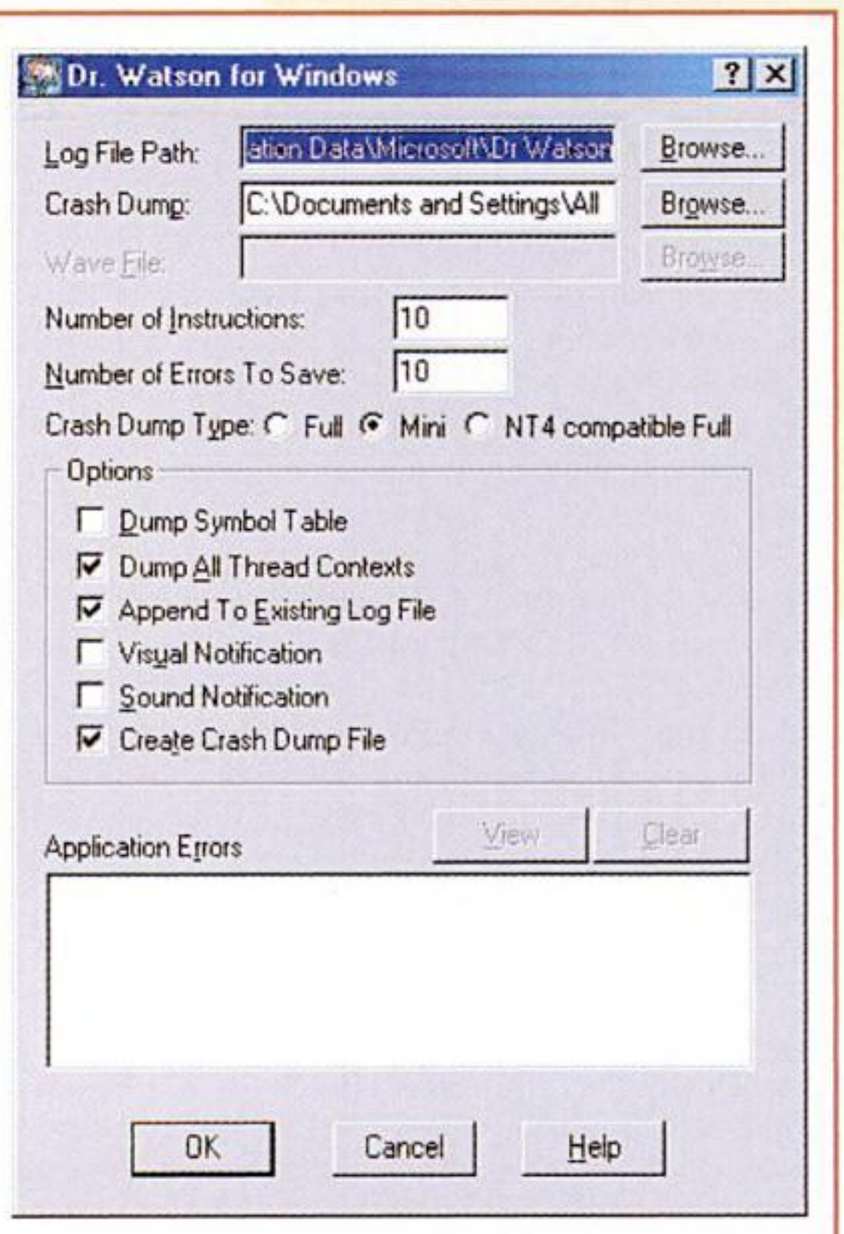
By clicking on the Advanced options, you can also root out third-party drivers that haven't been digitally signed, which means these drivers haven't necessarily been approved by Microsoft for use with WinXP. If you find drivers like these, check the manufacturer's web site for updated drivers, especially ones that have received WHQL (Windows Hardware Quality Labs) certification.

DirectX Diagnostic

Graphics and sound applications commonly use the DirectX API (application program interface) to run under Windows. Because of the variety and complexity of



The System Information utility isn't just a great resource for information about your PC. It's also a launching point for a host of great diagnostic tools.



Programs that consistently crash can be triaged with the Dr. Watson utility, which captures information about what went wrong for examination later.

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graphics hardware and software, there can sometimes be problems with various videocards, drivers, and programs that work with DirectX. The DirectX Diagnostic tool can give you information about the DirectX components and drivers on your system. This tool enables you to test sound and graphics output and enables you to adjust or disable certain hardware acceleration features for compatibility and testing purposes.

Dr. Watson

Dr. Watson for Windows is a software error-debugging tool designed to log information when errors occur. A text file (Drwtsn32.log) is created whenever an error is detected, and can be printed or sent to Microsoft or other software companies to help verify and resolve bugs in software.

Dr. Watson is automatically installed in your system folder when you install Windows. If a program error occurs, Dr. Watson will automatically log the error. You can also start Dr. Watson manually to change the configuration and settings for the program.

Perform Open Heart Surgery with DiskProbe

Microsoft includes a very powerful set of support tools located in the \Support\Tools folder on the XP Professional CD (these are unfortunately not included in the XP Home version). For descriptions of all the tools, Microsoft provides online documentation via release notes and a help file. Also, there's much more information on these tools in the Windows XP Resource kit, which you can view online at www.microsoft.com/windows/reskits/default.asp.

One of the more powerful and interesting programs included in the Windows Support Tools package is *DiskProbe*, a sector editor utility. *DiskProbe* allows you to read and write individual physical or logical sectors on a drive, and has special features for decoding and editing the Master Boot Record (MBR), partition tables, and volume or partition boot sectors. Because these structures are literally outside of the file system on a drive, they are not accessible through most other applications. With this tool, a knowledgeable user can restore these important data structures if they are damaged, for example by a boot sector virus.

In addition to editing, you can also use *DiskProbe* for preventive maintenance, by making backups of these critical sectors as files, which can be stored on another disk (such as a floppy, for example). Once saved, they can be later restored in the event that these sectors are corrupted on your hard drive.

To run *DiskProbe*, first make sure you have installed the Windows Support Tools from the Windows XP Professional CD. Then select Start > Windows Support Tools > Command Prompt. At the prompt, enter **Dskprobe**. The program will then launch in a window. Optionally you can run the program by opening Windows Explorer and navigating to the \Program Files\Support Tools folder, then clicking Dskprobe. The documentation for the program is available via the Help command on the menu bar.

Note that editing critical sectors such as the MBR is like performing open-heart surgery on your system. *DiskProbe* and other sector editors like *Norton DiskEdit* function at a level below the Windows file system, which means that the standard safety protocols are not in effect. *DiskProbe* gives you access to every byte on the physical disk without regard to normal security or access privileges, which makes it possible to damage or overwrite critical areas of the disk. If you change so much as a single byte incorrectly, you could render your system non-bootable and possibly render the drive unrecognizable even if the system is booted from a floppy or CD!

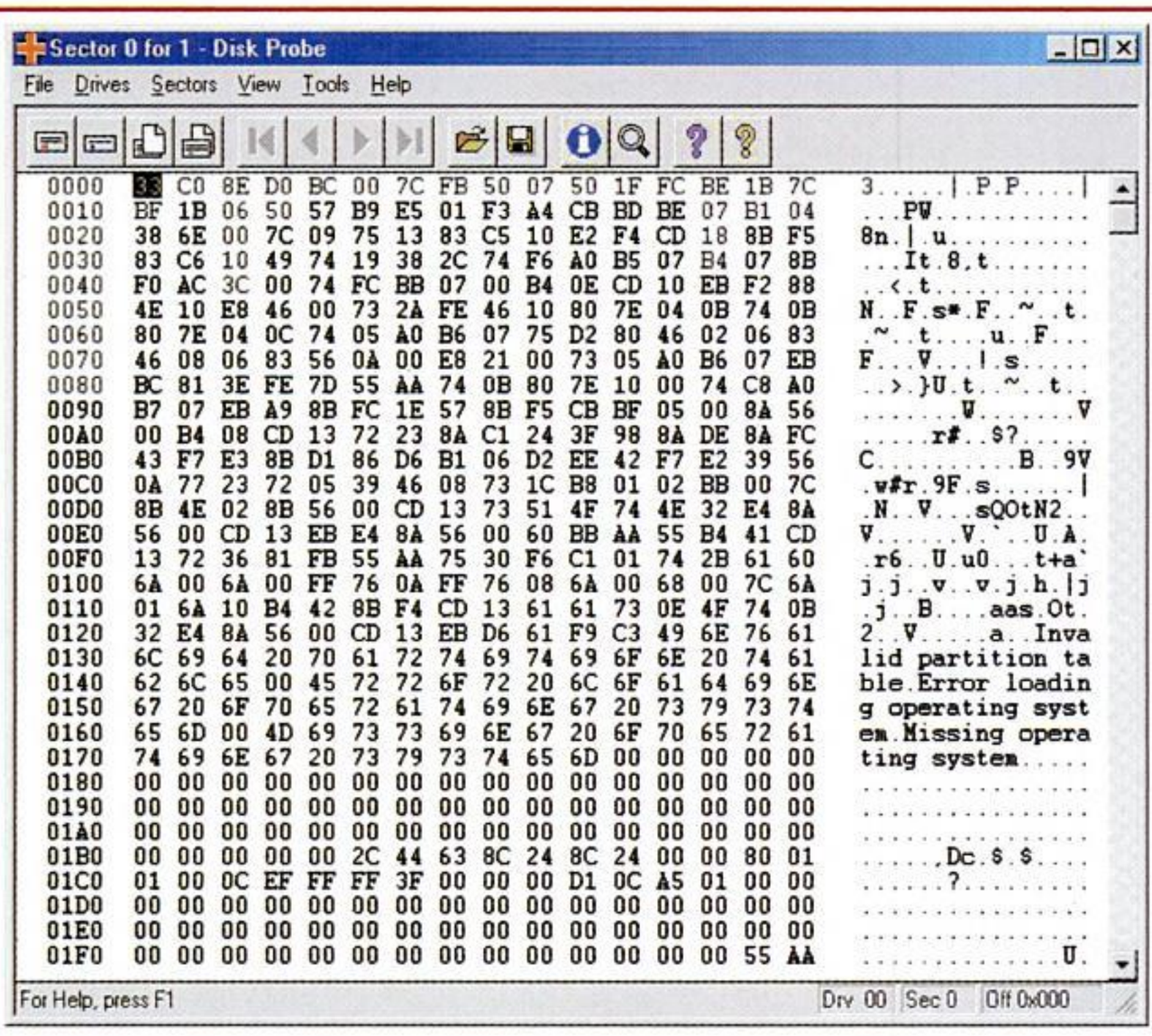
Fortunately, *DiskProbe* defaults to read-only mode, which means you can run the program to view sectors without worrying about accidentally making changes. Before you do make any changes with a low-level tool such as *DiskProbe*, make sure you have a backup of any important data.

I have specialized in data recovery for many years, and in that line of work I regularly use sector editors like *DiskProbe* to restore critical boot sectors on hard drives that had otherwise been inaccessible to Windows.

In a recent example, a client of mine appeared to have lost hundreds of hours of video footage due to a hard drive crash. To solve the problem, I did a manual inspection of the MBR and partition boot sectors. The drive had been formatted with the FAT32 file system, and I very quickly discovered that somehow the first sector of the three-sector long FAT32 partition boot sector, which was at Logical Block Address (LBA) 63, had been overwritten with zeros. I knew from experience that FAT32 keeps a backup copy of the primary partition boot sectors at LBAs 66 through 68. So I used *DiskProbe* to copy sector 66 and paste it to sector 63, thereby solving the problem.

A job like this would cost hundreds to possibly thousands of dollars if sent to a professional data recovery service. Now you see why most people who know data recovery don't like to teach it.

Except me, that is.



If you have a steady hand and some experience with hex editing, DiskProbe *can rescue you from major hard disk calamities.*

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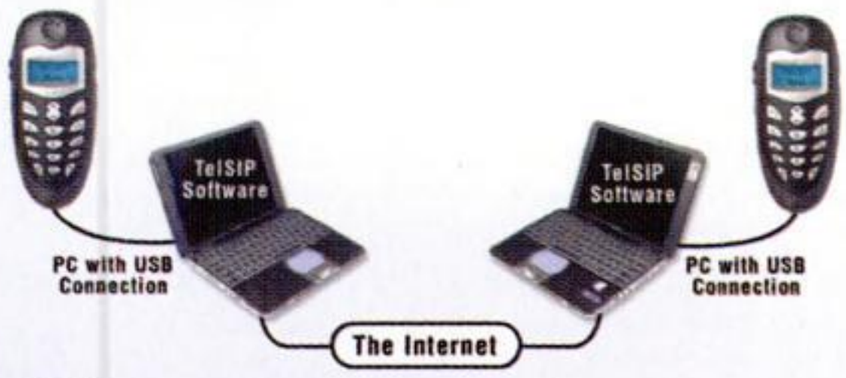

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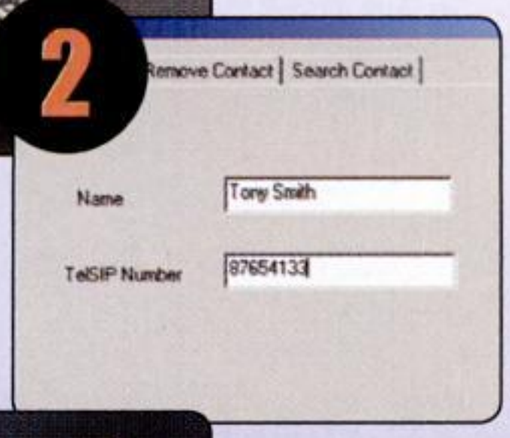

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The XP Doctor Is In!

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Installing Windows XP from Upgrade CD

Can I do a full install of Windows XP on a clean hard drive with an upgrade XP version? I want to start from scratch with a new drive and not install Windows 98 first.

You never need to install an older version of Windows in order to upgrade it with a newer version. If you use an upgrade version of Windows XP on a blank system, Windows will prompt you to insert a valid Windows 98, ME, or 2000 disk near the beginning of the install process.

Double Disks?

Can I install Windows XP to two of my home computers, or do I have to purchase two installation disks?

Unfortunately for consumers, Microsoft's licensing rules for Windows XP allow the OS to be installed on only one machine at a time. However, if you already have a copy of XP and want to upgrade another machine, you can save a few bucks by buying an extra license without the CD and manuals. You can order additional licenses for XP Home or Professional at http://shop.microsoft.com/. A Home upgrade costs $84 and a Professional Upgrade costs $184.

Windows XP Activate!

I am always tweaking my computer with hardware upgrades. Now it's reached a point that whenever I make a change to something in my computer that is hardware related, I have to re-activate my copy of Windows XP. This was fine the first few times when I could do it online, but now I have to call to get the activation code. I know they do this to prevent piracy and to prevent you from loading the software on more than one computer, but I am always making some type of change to my computer and it's getting rather annoying. Is there anyway around this?

Unfortunately, there's no legitimate way around Windows XP's product activation, however we have to wonder how frequently you're upgrading your hardware to encounter constant reactivation requests.

On our test systems, the only way we can force a reactivation request is to upgrade a lot of hardware. We've seen activation requests when we've upgraded more than two of the following components: the motherboard, CPU, network card, or hard drive. Even *Maximum PC* editors stick with a system for at least six months.

Saving Patches and Hot Fixes for Later

I have a question about patches and hot fixes. I thought I could download all the patches to a directory and apply them when I wanted, but they always install themselves and I have no idea how to save them so at some future date I can wipe my hard drive and reinstall Windows and then reinstall all the fixes without having to download them again. Is this possible, and if so how?

The site you want is download.microsoft.com. Click the Windows (security and updates) option on the left side of the page. Make sure you download all the updates listed—you'll need to click "Next 45" at the bottom of the page to see them all. The Doctor recommends you download all the security updates for your version of Windows to one folder. After you've done that, you can save them to CD, DVD, or whatever format you'd like for future use.

Windows (Security & Updates)

Most Popular Downloads

1. Mydoom (A, B) and Doomjuice (A, B) Worm Removal Tool (KB836528)
2. Security Update for Windows XP (KB823980)
3. Internet Explorer 6 Service Pack 1
4. Blaster Worm Removal Tool for Windows XP and Windows 2000 (KB833330)
5. Cumulative Security Update for Internet Explorer 6 Service Pack 1 (KB832894)

⊟ Next 45

6. Security Update for Windows XP: KB828028
7. Security Update for Windows 2000: KB828028
8. Security Update for Windows XP 64-Bit Edition (KB823980)
9. Security Update for Windows 2000 (KB823980)
10. Security Update for Windows XP (KB824146)
11. Cumulative Security Update for Internet Explorer 6 (KB832894)
12. Security Update for Microsoft Windows 98 and Windows 98 Second Edition (KB823559)
13. Windows XP Home Edition Utility: Setup Disks for Floppy Boot Install
14. Software Update Services 1.0 with Service Pack 1
15. Windows XP Professional with Service Pack 1 Utility: Setup Disks for Floppy Boot Install
16. Windows 2000 Service Pack 4 Network Install for IT Professionals
17. Security Update for Windows NT Workstation 4.0: KB828028
18. Cumulative Security Update for Internet Explorer 6 Service Pack 1 (KB824145)
19. Security Update for Microsoft Windows XP: KB828035
20. Internet Explorer 5.5 Service Pack 2 for Windows Me
21. Security Update for Windows NT Server 4.0: KB828028

If you find yourself frequently installing Windows on new machines, you can save yourself a lot of downloading hassle by keeping copies of all the Windows patches on a CD.

FireWire Failure

Why does Windows XP sometimes fail to recognize my FireWire (IEEE 1394) hard disk after a restart?

This is a known problem in XP in which the disk fails to start on approximately every fifth attempt. No fix is currently available. The only solution is to unplug the disk, wait 15 seconds, and then reconnect the device. If this solution doesn't work, try powering off the computer, wait five seconds, then restart the machine.

Messenger Messages are Driving Me Mad

I have a home LAN using Windows XP Home Edition. My family and I will be playing online games or watching a movie in the living room when, all of a sudden, we get a pop-up message on our desktop. Can I fix this problem without resorting to third-party software?

The Windows Messenger service—not to be confused with Windows Messenger, the IM client—is the latest front in the war against spam. Luckily, these messages can be stopped by activating XP's built-in firewall.

All you need to do is open up the Properties for your Internet connection, go to Start> Control Panel> Network Connections, and then right-click the icon for your Internet connection. (If

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you use a cable modem or DSL, it will probably be a Local Area Connection, but if you use an analog modem it will be named after your ISP.) Click Properties, and then click the Advanced tab. Check the box labeled "Protect my computer and network by limiting or preventing access to this computer from the Internet."

Activating XP's built-in firewall options should eliminate evil Messenger-spawned spam.

Legacy App Woes

I have used a database program for years, but it won't work with Windows XP. It originally was a DOS program, and there is an updated version that works with Windows 98. I have tried to use the emulator in XP, but the app just won't run. How can I get a Windows 98-compatible program to work with Windows XP?

Like Kenny Rogers sings, you gotta know when to hold 'em, and know when to fold 'em.... The Doctor knows it's difficult to bid adieu to an application that's served you well for years, but Richard, it's time.

The sad fact is, some applications work with the Windows XP compatibility tools, and some don't. We recommend you find a way to export your data from your old database app into a more commonly recognized format. Almost every application lets you import from comma- or tab-separated text files, so you should dump your old database into a .CSV (comma separated value) file from a Windows 98 machine, and then import it into your new database app.

Perennial Performance Problems

I've had WinXP since the first month it was out, and I've noticed a sporadic problem. My PC slows down to the point of crawling at times. When I check the Task Manager, I notice that the "system" process is running at 100 percent. A reboot stops the slowdown, but it inevitably comes back.

What puzzles me the most is that I've had this problem consistently over the last two years spanning three motherboards, four processors, and 20 fresh reinstalls of WinXP. All of my hardware (including floppies) has been changed out during the course of my upgrades, so it can't be a hardware problem. I'm a stickler for trying to keep current, so all the hardware is flashed to the newest versions and all my drivers are the latest builds.

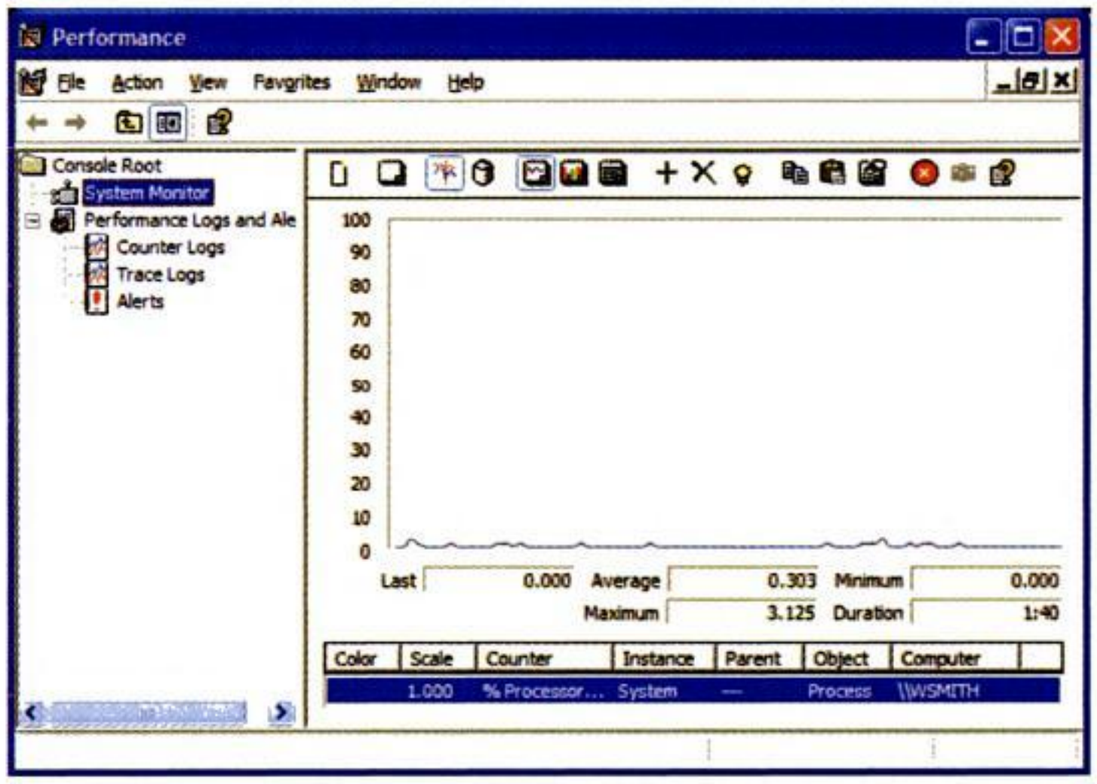
Please help!

We've seen this before and it's usually the fault of either a badly written driver or an especially unpleasant virus. Another suspect is spyware running distributed computing—similar to Seti@Home—in the background and disguising that CPU usage as a System process. We've also heard reports of a bug in Windows XP Service Pack 1 having the same effect.

Because you've updated all your hardware, it's likely either a virus or spyware that is causing your problem. Get a virus scanner, such as *McAfee VirusScan* or *Norton Antivirus*, update your definitions, and do a full system scan. If that doesn't turn up anything, start with a clean install of Windows XP, then add one piece of software at a time to your system. First test the system with no other software installed. Then install Service Pack 1 and test again. Finally, install the other software you use, one item at a time, and test them individually. If you're still experiencing problems, disconnect your PC from the network and see if that fixes the problem.

When conducting your tests, the Performance applet comes in handy. It's located in Start > Control Panel > Administrative Tools > Performance. Open up the Performance Logs section, then click Counter Logs. In the right pane, right-click and select New Log Settings. Give your log a name, and then click the Add Counters button. Change the Performance object to Process and select the % Processor Time counter from the counter list, and then choose the System process from the list of different processes. The Performance tool will record the CPU usage for the particular process you're troubleshooting while you run your tests. To see if it spiked while you were testing, open the Performance applet again and press Ctrl+L to open a log file. If you click the Add button and select the log you've created, it will show you a graph of the CPU usage for the process you selected.

Make sure you disable any counter logs you create when you're done with them, as some can seriously degrade your PC's performance.



The Performance tool is your best bet for isolating misbehaving applications. You can easily isolate the CPU usage for a single process and track it over time.

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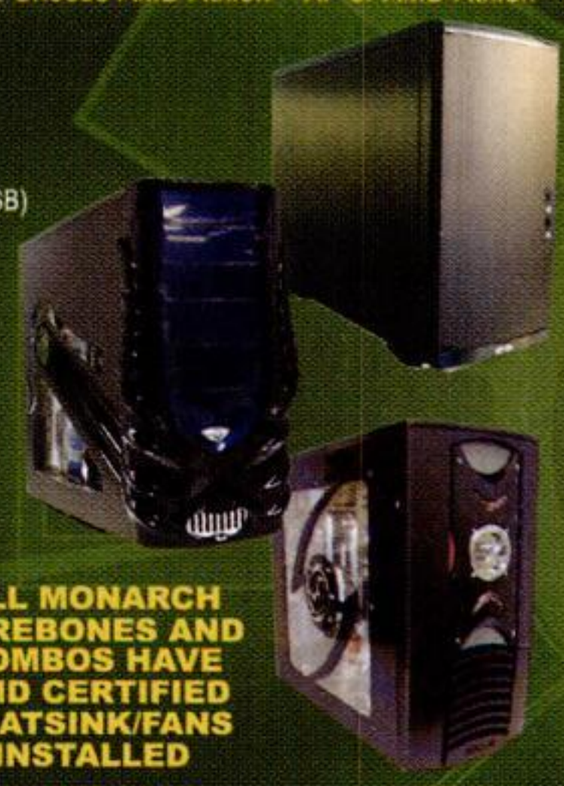

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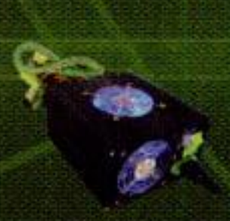

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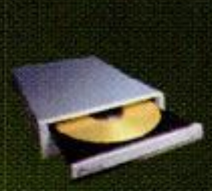

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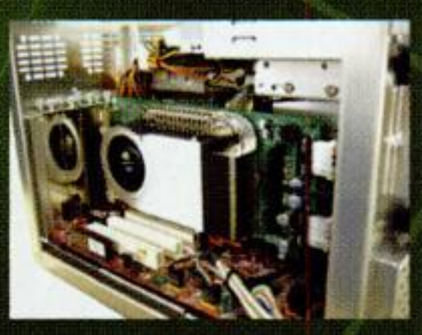

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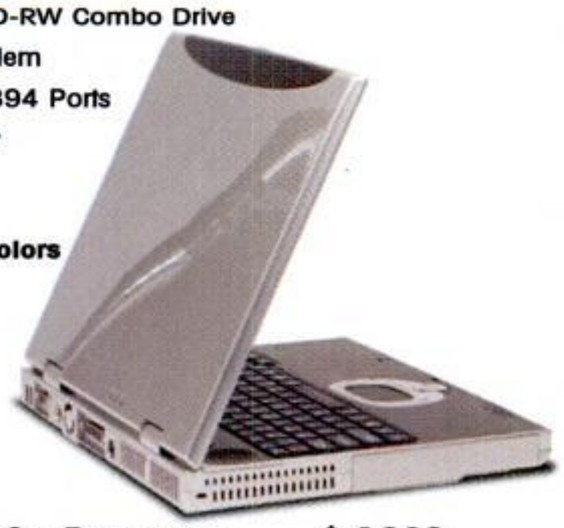

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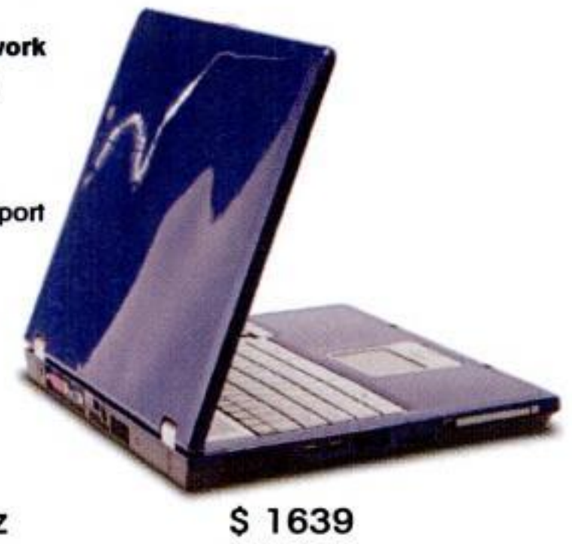

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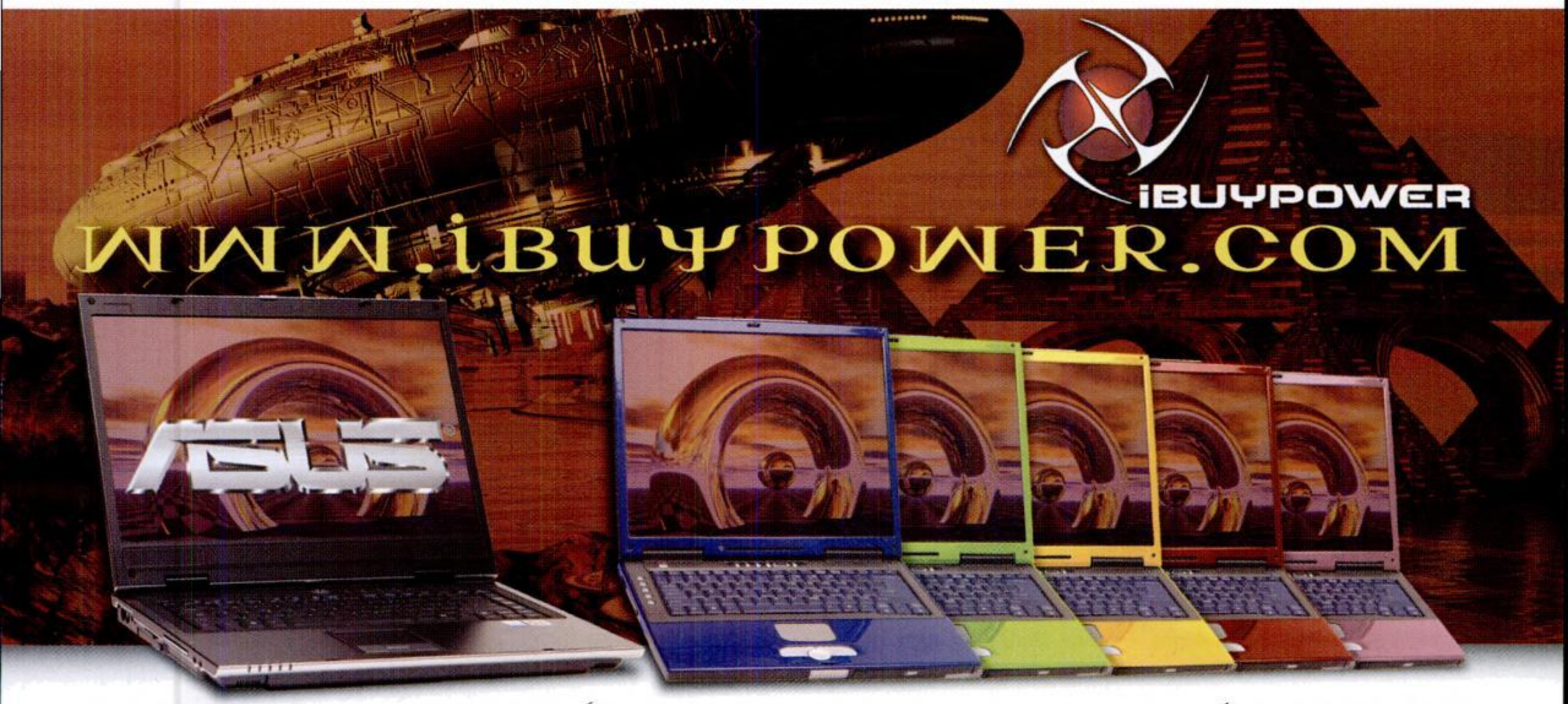

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Windows Longhorn Sneak Peak

We got our hands on an advanced preview version of Windows Longhorn and put the upcoming OS through the *Maximum PC* wringer. We came away duly impressed.

Let's get this out of the way right now: Don't expect to install Microsoft's next version of Windows, code-named "Longhorn," on your PC until 2006. But that's not too long to wait for what looks like the most ambitious operating system Microsoft has ever released, is it? We don't think so either.

What makes Windows Longhorn worth waiting for? Three key features: a new database-driven file system, a fancy-pants 3D user interface, and the usual host of feature-laden updates to the interface. We "acquired" a copy of an early alpha build of the OS and gave it a full run-through. Keep in mind that this is very early software, and any features mentioned here may or may not make the final cut. Crucial features like the new 3D user

Stacks are like context-sensitive folders for your data. Here, we did a search for all our Bob Dylan music, and then created stacks for each album. This is completely independent of the folder structure. The actual MP3s are spread all over our hard drive.

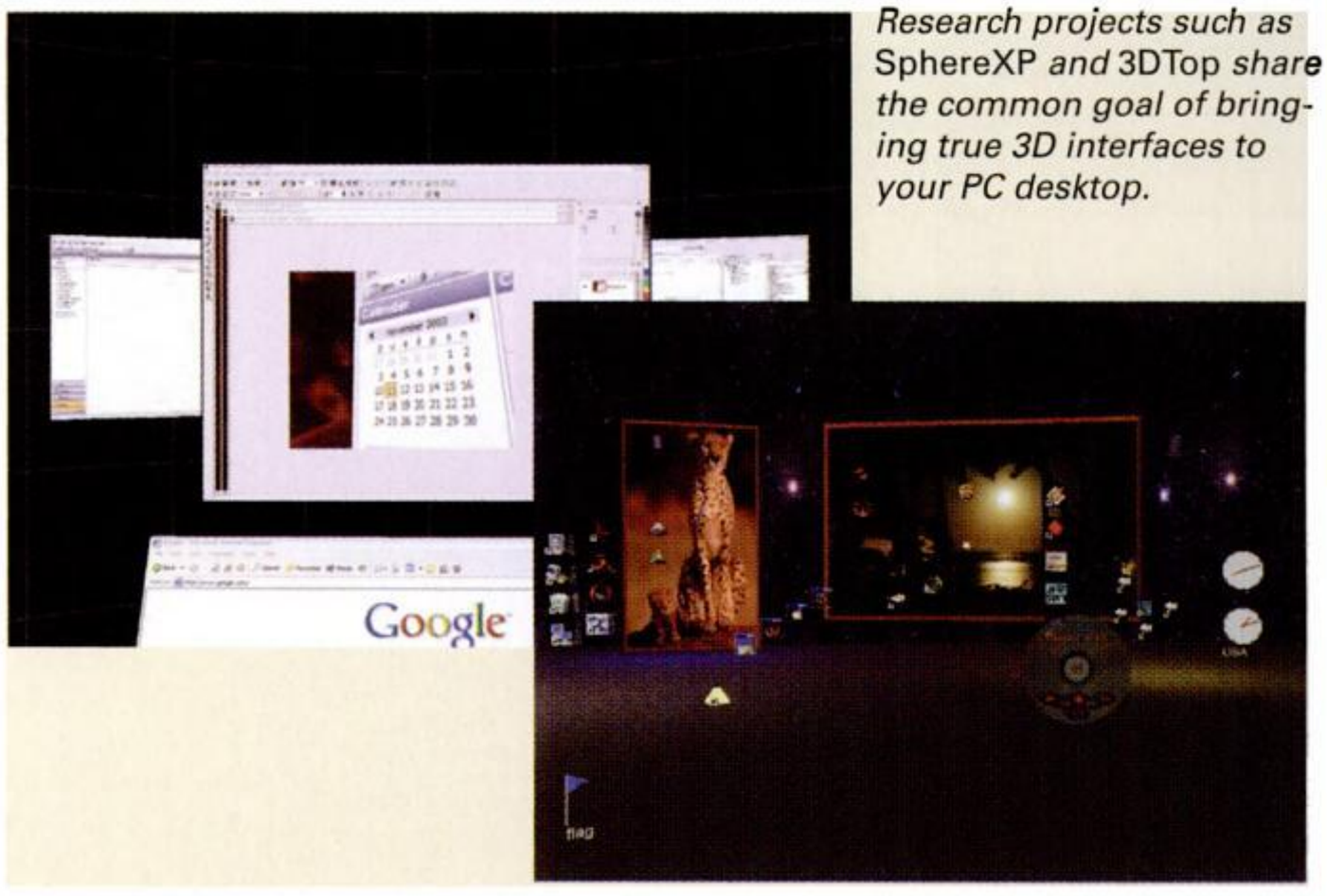
The Windows Address Book has been replaced with a Contacts Query. Once your contacts are set up, you can e-mail or IM a pal directly from here. Even cooler, you can associate images with people who are in them, so you can use queries to search for images of certain contacts.

Make WinXP 3D

Microsoft may not be showing screens of its new 3D interface for Longhorn yet, but that doesn't mean you can't get a taste of Windows' 3D future today. Several different organizations, including Microsoft, are currently working on prototype technologies with the goal of giving your desktop a complete 3D transformation.

Dusan Hamar's *SphereXP* is a work in progress that you can take for a spin yourself at www.hamar.sk/sphere/. Designed as a total replacement for XP's 2D desktop, *SphereXP* basically puts you in the center of a sphere, with all your apps and desktop objects revolving around you. You can pull objects to the foreground or push them back as you see fit. You're only allowed to change the sphere's background image, which ensures that every PC using *SphereXP* will operate exactly the same and that you'll only have to learn one environment.

Other 3D GUIs in progress include Microsoft's *TaskGallery* (http://research.microsoft.com/adapt/TaskGallery), and Vimana BV's *3DTop* (www.3dtop.com). Check 'em out!



Research projects such as SphereXP *and* 3DTop *share the common goal of bringing true 3D interfaces to your PC desktop.*

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The Longhorn desktop includes the Sidebar (top-right corner), a new place for always-running apps with dynamic updates to keep you informed. Expect to see your IM client, among others, here.

This handy window provides an easy way to sort, categorize, and even preview any digital photos or videos on your system.

interface are still absent in the build we tested, so treat this as the most tentative of previews. (The prospect of a 3D interface may scare you, which is understandable given how taxing the current default "Luna" scheme can be on typical machines. However, keep in mind that Bill Gates sees the "typical" machine having a 4GHz to 6GHz processor, more than 2GB of memory, and at least a terabyte of storage when Longhorn debuts.)

Despite the missing 3D interface, several new interface elements are present in Longhorn. We immediately noticed the new Sidebar, a super-sized version of the existing system tray that will give you instant access to important apps—like the clock, calendar, and instant messaging apps (get a taste of this now see "SmartBar" on the disc). The sidebar takes up a lot of screen space, but can be set to auto-hide, just like the Taskbar. Or you can manually adjust the amount of space it uses.

After playing with it for a while, we're really stoked about the new WinFS file system. Inside My Computer there's a new entry called the Default Store. When you drag any *Word* documents, *Excel* spreadsheets, images, music files, or videos onto the default store, Longhorn will extract the meta-data from the files and save it in a fast SQL-based database. All the info contained in your ID3 tags for music, EXIF data for images, and author and keyword information for *Word* docs will be instantly searchable.

Once your files are ensconced in the default store, you'll be able to easily use one of Longhorn's pre-built queries, which currently reside in the Start Menu. In the build we tested, we saw queries for Music, Documents, Photos and Videos, and Contacts. Each comes with several sorting options and is semi-configurable. In addition, you can save frequently used searches to the left side of the Query window. We expect that you'll be able to quickly write your own queries so you can sort any files stored on your computer anyway you want.

Several other new whiz-bang Longhorn features are worth mentioning. We're thrilled that Microsoft is finally including an end-user interface to help you prevent unwanted Systray apps from loading every time you restart the machine. We also like the new features in *Internet Explorer*, which include an advanced download manager that supports resumed downloads and allows you to prioritize each active download, as well as a pop-up stopper. While tabbed browsing is nowhere to be seen, we still expect it to be present in the final version. ■

Longhorn Wish List

Longhorn is still a long ways off, so Microsoft has plenty of time to cater to our wishes and implement features we'd like to see, right? (Okay, so we've got big heads here at *Maximum PC*.) Here's the list of our Top 10 most-wanted Longhorn features (drum roll, please):

1. **Internet Explorer dis-integration (we can wish!)**
2. **3D interface**
3. **System Restore available through the Recovery Console**
4. **An updateable Help system that is, um, helpful**
5. **Dual-pane Explorer windows**
6. **Elimination of cryptic, eight-letter system file names**
7. **No OS-wide digital rights management**
8. **Faster boot time—no more than 10 seconds**
9. **No installation routine for games, and no reboot after a program is installed**
10. **No more My Pictures, Videos, eBooks, etc. folders**

New Windows OS = New DirectX = Good for Games

DirectX is the name for Microsoft's standard application programming interface (API) developers use to ensure that their software can "talk" to your hardware, with as little tweaking on your part possible. The plans for the new version of *DirectX*, to be made available with the release of Longhorn, are as ambitious perhaps as those for the OS itself.

For starters, the installation process is going to be streamlined, with games running entirely off of CD, or using a "silent setup" to copy to the hard drive unnoticed—just like the Xbox. A standard gamepad controller design—able to work with all types of games—is also in the works, as are built-in "patch update" notifications for all games installed on your hard drive, as well as the ability to set-up and launch online games with friends via *MSN Messenger*.

Other items on the *DirectX* team's plans include a built-in benchmark that will tell you what games your PC can run, which will also spawn a new "number-based" system for retail. You'd just need to run the benchmark on your PC at home, then look for games with the corresponding number on their box. Finally, the display driver process should be greatly simplified, allowing you to easily tweak settings without rebooting.

Expect Longhorn to give you one central portal for gaming on Windows. And we're not talking about the craptacular games that come with Windows either. We expect to see A-list games here.

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WinXP Trivia Challenge

Test your knowledge of useless Windows XP development facts.

Just how much time, effort, caffeine, and baby-making goes into the release of a new operating system? Probably much more than you think. Take your best stab at our WinXP trivia quiz, and then use the answers (at the bottom of the page) to amaze your friends at parties.

1. According to Microsoft, WinXP is compatible with X percent of the most popular PC programs released during the last three years before its launch:
a. 100
b. 90
c. 80
d. 0

2. Windows XP supported *X* number of hardware devices, natively, out of the box.
a. 25,000
b. 10
c. 75,000
d. 12,000

3. Windows XP's System Restore function was tested *X* times before its release.
a. 2
b. 500
c. 500,000
d. 1,600,000

4. It took *X* days to develop Windows XP.
a. 10
b. 100
c. 600
d. 1,200

5. Number of focused team members responsible for XP's development:
a. 333
b. 2,001
c. 6
d. 5,736

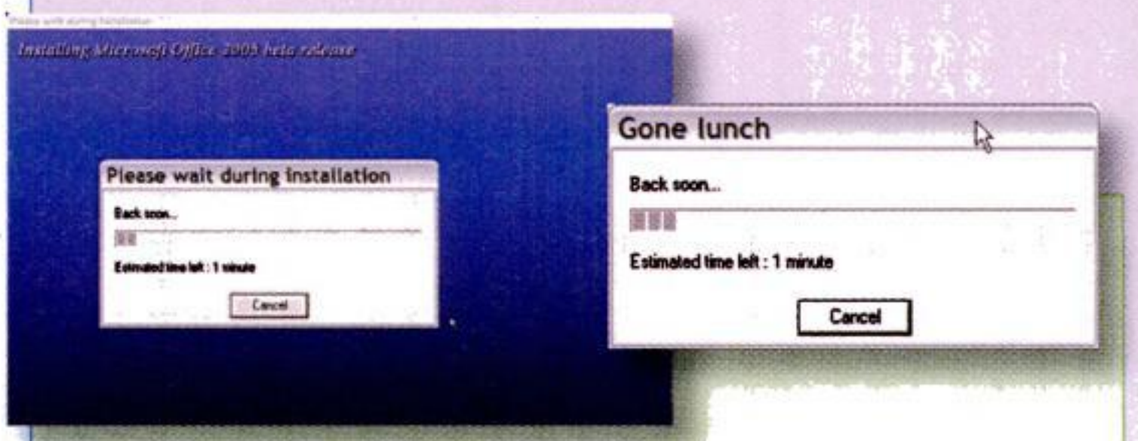
6. Number of testers per developer:
a. 0
b. .6
c. 1.4
d. 3

7. Number of babies born during the project:
a. 0
b. 12
c. 376
d. 452

8. Number of Frappuccinos consumed:
a. 25,789
b. 100,700
c. 38,500
d. 86,400

9. Longhorn will be the __ version of the Windows OS.
a. 10th
b. 12th
c. 14th
d. 15th

10. Number of applications tested for compatibility before launch:
a. 2
b. 5,500
c. 10,000
d. 2,347



Fool the Boss with Nap and Coffee

Want to get away from your office for a little while and fool your boss into thinking you're only doing so because your PC is tied up with a time-consuming task, such as installing a new software suite or reformatting its hard drive? Or perhaps you'd rather just sit at your desk and read the paper rather than work—with a handy alibi at the ready? This tiny freeware utility could save your slacker butt from being summarily tossed. *Nap and Coffee* will simulate a variety of tasks, such as a disk-surface scan or full installation of *Microsoft Office*. Alternately, you can just use it as a countdown timer that will let folks know when you'll be back from lunch. Get it at: **http://kinkodev.free.fr/mini.php?ID=10&lang=ENG**.

In the same vein, hit up **www.ishouldbeworking.com** for scads of loafing tips and office horror stories.

10 *Web Sites Every Geek Should Bookmark*

Annoyances.org: This popular site has a tip, tweak, or fix for just about anything you find annoying, frustrating, or inane about WinXP—or any other version of Windows, for that matter.

ArsTechnica.com: Hardware- and software-agnostic computing news is only a bookmark away. Ars Technica has something for computer geeks of every persuasion.

Slashdot.org: "News for Nerds. Stuff that Matters." Slashdot's tag line says it all.

Shacknews.com: If it's about gaming, Shacknews covers it. Get all the latest news about the world of games here.

TheInquirer.net: More than 90 percent of computer-related news on the Net originates here. OK, we made that up, but *The Inquirer* always seems to be five minutes ahead of the rest of the web.

Gizmodo.com: If you ever wondered where your gadget-savvy pal finds out about all his wonderful toys, it's probably Gizmodo. Get the latest on PDAs, wireless tech, and just plain cool stuff.

Hyperdictionary.com: Every word a link. Every link a definition. This is the way dictionaries should be.

Wikipedia.com: The Internet's own free encyclopedia. With more than 170,000 articles, the Wikipedia holds answers to most of your burning questions.

Maximum PC Commport. With 2 million-plus posts, the Commport holds the collective wisdom of hordes of helpful *Maximum PC* readers: **http://forums.delphiforums.com/maxcommport**.

Sysinfo.org Startup List. This is an excellent resource for when you are trying to figure out just what's going on in the background on your PC. Just about every possible stealth app and Windows service is listed and described: **www.sysinfo.org/startuplist.php**.

XP Trivia Answer Key: 1. b, 2. d, 3. d, 4. c, 5. d, 6. c, 7. d, 8. d, 9. d, 10. b

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